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COMMERCIAL CAR JOURNAL



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COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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JOURNAL

CCJ

READER DIGEST

Convex Mirrors for Truck-Trailer Combinations

A leading safety engineer, in a study of rear view mirrors, recommends the use of large, rectangular plane mirrors for both sides of the cab. These should be supplemented with two convex mirrors mounted at the front fenders for wider range of rear vision. See Page 59.

Power Steering is On the Way

As many as six hydraulic steering booster units available from as many manufacturers are described in detail in this round up of power steering equipment. Detailed information on the operation and advantages of power boosters is provided for the operator who may be thinking of adding assist units to present vehicles in the interest of safety, improved stability and reduced driver fatigue. See Page 64.

SAE Annual Meeting in Detroit

Tips on vehicle selection, operation and maintenance are provided in this review of the Detroit SAE meeting, in which excerpts from several engineering papers are published. The maintenance man will be interested in the paper on piston rings, by H. G. Braendel; the paper on engine bearings, by W. E. Thill; the paper on Valve maintenance, by N. L. Hoertz. See Page 56.

Southeastern Idaho is Site for Road Test

Road tests are continuing. Highway engineers, state highway officials, the Federal government, and others want to know the score. Every truck and bus operator also should keep posted on these tests as, in one way or another, he may be directly concerned with the outcome. See Page 51.

Accident Review Board Spurs Safe Driving

Calling the drivers in on meetings in which accidents are discussed creates a better understanding of management problems and brings home the importance of defensive driving techniques. Lasham Cartage's system has done this and cut accidents as well. For full details how this effective program works, see Page 62.

Floor Ventilated Paint Shop

Four buses, all in different colors, can be sprayed simultaneously in Dallas Railway's paint shop thanks to unique under-floor dust system that combines air, water spray and water trough. By pulling air down instead of up, shop is super clean. See Page 54.

New Streamlined News Coverage

Information of vital interest to the fleet operator comes from CCJ staff editors at Washington (Page 23), Detroit (Page 27), and reports of the industry at large (Page 31). Short, punchy items keep progressive fleetmen abreast of developments in the industry.



to Fleet Operators! **CUT COSTS ADD TO EFFICIENCY SAND-BANUM SPECIAL**

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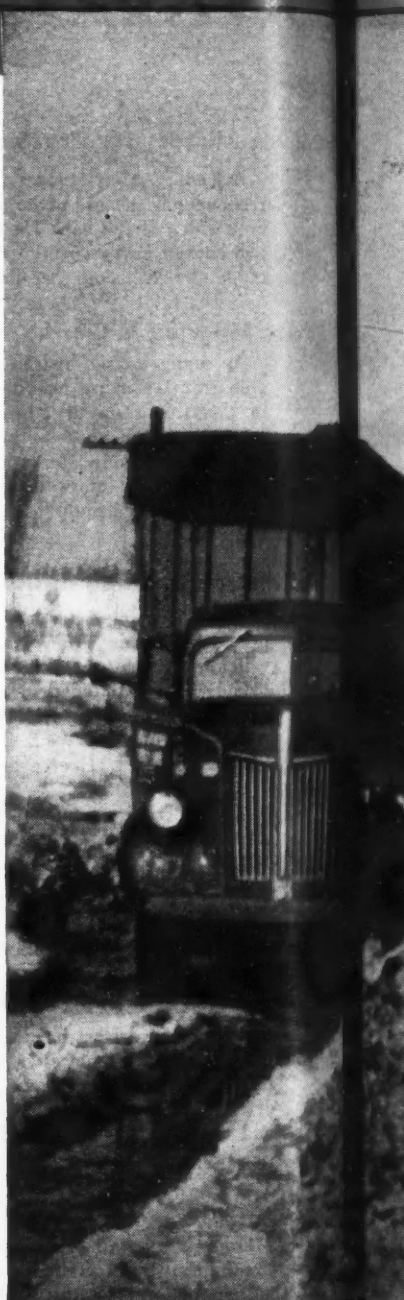
In transmissions and differentials, use *Texaco Universal Gear Lubricant*. It carries the load, assures smoother operation, prolongs gear life.

Let a Texaco Lubrication Engineer help you to greater fleet operating economies. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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CONFERENCE C O R N E R

PRESENTING THE EXPERTS' VIEWPOINTS ON TIMELY SUBJECTS OF INTEREST TO FLEETS

Subject: Electrical Troubles

By H. B. Birt

Delco-Remy Div., General Motors Corp.

A recent CCJ survey reports electrical troubles to be the No. 1 cause of road failures experienced by truck fleets. Such a report naturally is of concern to both the manufacturer and the fleet owner, and a brief discussion of the situation seems in order.

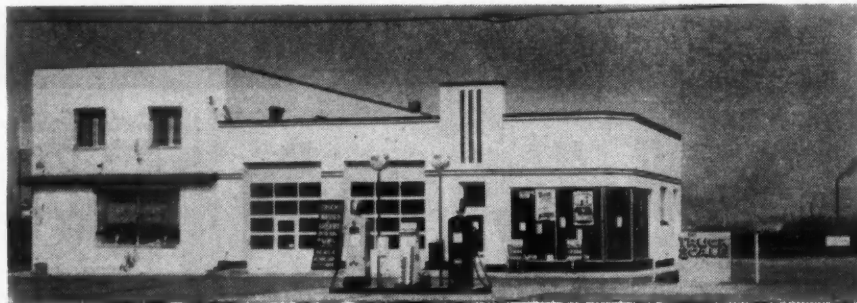
The familiar problem of maintenance first occurs to most of us when we consider actual road failures. During the last few years fleetmen have made tremendous progress in establishing preventive maintenance programs and many fleet shops are models of efficiency and cleanliness. Nevertheless, a considerable number of road failures still can be traced to faulty maintenance procedures. An outstanding example is improper lubrication.

Examination of lubrication failures indicates that trouble frequently starts with a misunderstanding of the unit's construction. A good (or bad) example of this is the oil-reservoir type ignition distributor. Despite the fact that this method of lubrication (porous bushing) has had wide publicity, some operators continue to install grease fittings in new distributors of this type, and fill the reservoir with grease. Grease, of course, plugs up the porous bushing and causes early bearing failure. Obviously, the only answer to problems of this type is more widespread information. Manufacturers are aware of the need, and field training programs have been set up on a larger scale than ever before. The mechanic (and his boss), however, must take advantage of educational programs or materials in order to make any real improvement.

When the out-and-out maintenance failures have been

accounted for, many road failures still remain to be explained. A check on these cases usually reveals a surprising number of misapplications of equipment. For instance, it may be found that a passenger car type generator has been placed in heavy-duty service, without any allowance for its particular engineering features. Or, a high output generator designed for intermittent type service may be serving continuously on a cross-country vehicle, at maximum output. Generator pulley sizes may have been changed indiscriminately, with disastrous effects. A pulley which is too small will cause poor commutation and short brush life. A pulley which is too large will reduce the charging rate at slower engine speeds, leaving the way open for a run-down battery. Regulators substituted without regard for polarity may be causing failures, through excessive oxidation of the regulator contact points. Substitutions of batteries of widely different types (lead-acid vs. nickel-cadmium, for example), without compensating changes in the setting of the voltage regulator, may be responsible for a number of charging system troubles.

In order to be completely fair it must be admitted that failures do occur, even when proper maintenance steps have been taken. These are of three general types—(1) improperly engineered original equipment, (2) special equipment improperly specified by the vehicle dealer, (3) equipment improperly substituted by the fleetman. Because of the three-way nature of this problem it is difficult, if not impossible, to offer a simple solution. However there are a few moves which can be made at once with benefit to all (1) original equipment failures should be reported to the vehicle manufacturer promptly, (2) special electrical equipment should be specified at the factory level wherever possible, (3) substitutions or alteration of electrical equipment should be made only on the advice of factory service engineers.



Truck Service Center

Recently dedicated by Pennsylvania State Secretary of Labor and Industry, David M. Walker, this new truck service station is now in full operation. Located in Philadelphia's trucking district at 4176 E. Thompson St., the center has an axle scale, parking space for 500 trucks, private rooms, showers, a diner, overnight laundry, office and terminal service, all types of fuels, truck tires, a loading service and messenger system available.

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Never before has so much money-saving value been packed into the truck tires now available from your Cooper dealer. And this good news on top of a 38-year Cooper reputation for building really great truck tires. Reduced truck tire costs are as near as your telephone—so why not call your Cooper dealer for complete details . . . soon.



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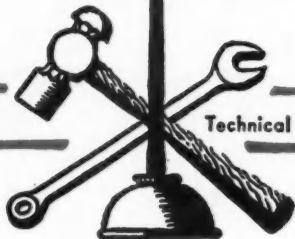
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At Your Service

By M. K. SIMKINS

Technical Editor, Commercial Car Journal



New Surfaces for Piston Skirts

Many fleetmen are turning to some process of piston resizing in a move to increase ring and piston life. Reports indicate that the process is effective in improving piston stability to the point where ring seal is better, and cylinder wall scoring is reduced.

This method of restoring pistons uses a machine to increase the diameter by accurately displacing metal on the piston skirt to the point where: 1. the piston travels in the bore without rocking, 2. the new surface provides an interrupted surface which holds the oil film. Thus, ring wear resulting from rocking pistons is eliminated, and in addition the oil film carried in these pockets serves as an extra cooling medium. These pockets also serve as "expansion joints," permitting surface metal to expand sidewise under heat rather than bulge and break through the protective oil film. As a result closer piston to cylinder fits can be employed without danger of scuffing or scoring.

The process is not a cure-all and will not increase diameter of a standard size piston to oversize. It will not prevent wear from abrasives or from over-rich carburetion. But resizing via this method will provide improved piston and cylinder life under many rugged operating conditions.

This process has been developed by several companies, among them are Perfect Circle Corp., with the "Nurilizing" process; Hastings, and the "Micro-Knurling" system; Wausau, which offers the "Precisionurl" method.

Chrome Rings Cut Engine Wear

Having ring wear troubles? Cylinder scuffing and scoring? Have you tried chrome rings? Of course, there are scores of factors which could be responsible for poor ring service, such as: 1. abrasives, 2. low engine temperature, 3. detonation, 4. improper ring fitting practices, 5. engine lugging, and similar conditions. But you may eliminate much of this wear with chrome rings.

The advantages of chrome plated compression rings is recognized in the industry, but some operators have been slow to take advantage of this development. Chrome rings actually provide better wearing surfaces—as much as 80 per cent longer wear in some cases—and are especially adaptable to engines operating under dusty conditions. Probably because of this, cylinder wall wear is reduced in much the same proportion. The scuff-resisting qualities of this type of ring may be just what you need in your operation. Try them in problem engines.

Drivers and Brake Troubles

Some of your brake troubles, especially those arising with cracked and warped drums may be traced directly to poor driving habits in the form of: 1. excessive severity in application, 2. setting hand brakes when drums are hot, 3. failure to use proper gear ratio when descending hills, 4. using trailer brakes to carry full braking load.

It is true that equal work must be done to stop a vehicle traveling at say 30 miles per hour, whether the brake application be gradual or severe. However, with gentle or intermittent applications heat is generated over a longer period of time so that it can be dissipated to the drums and out to the air without causing overheating of the drums. Use of lower gear ratios in descending hills, of course, takes much of the load off the brakes and eliminates tendency to overheat.

Frequently overlooked as a cause of distorted drums is this practice of setting the hand brake on drums that are overheated. When the drums cool, they contract against a non-compressible brake block or shoe and may crack or warp.

Investigate your driver practices in braking, and when they can be traced to such abuses, make use of clinics, bulletin boards and instruction courses to help them to more brake miles.

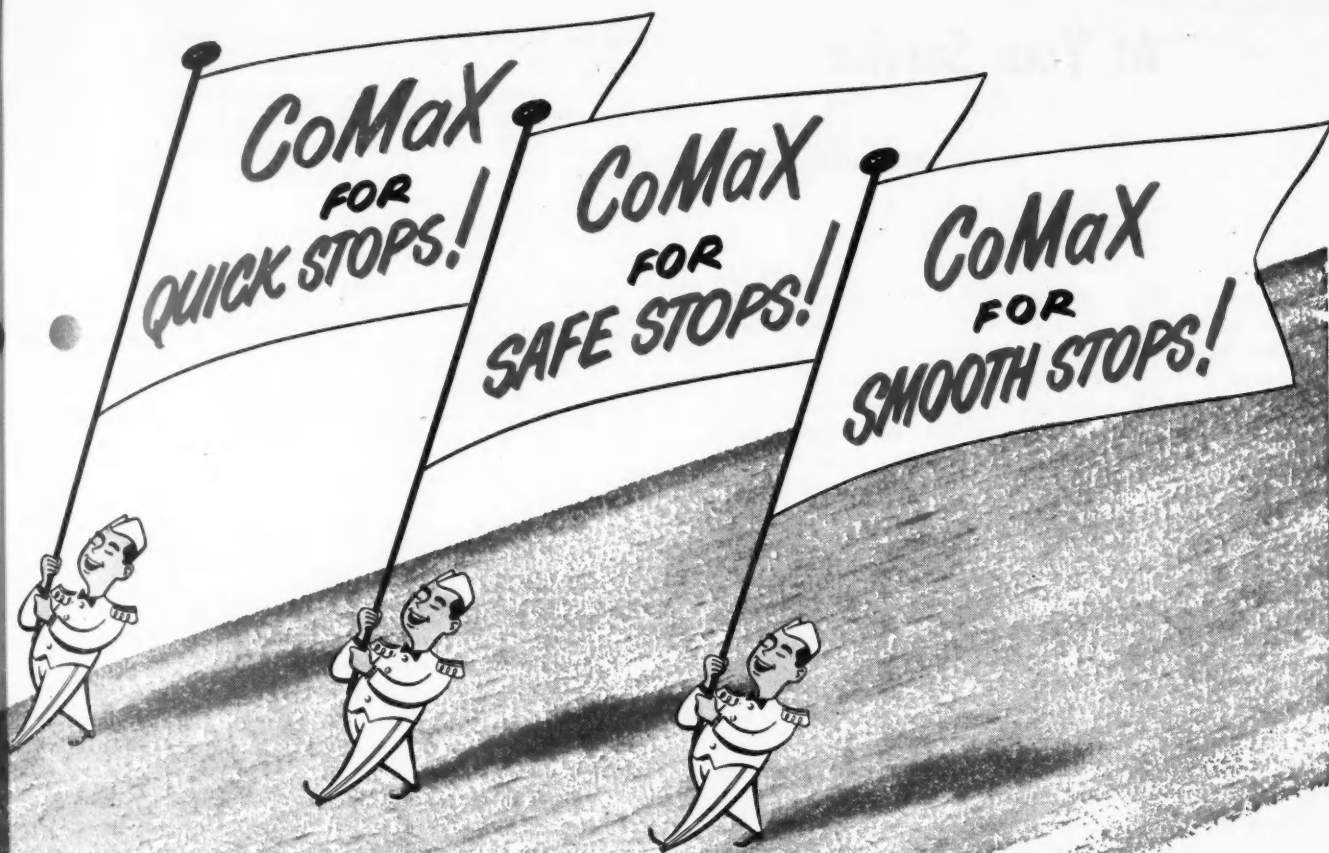
Leaf Spring Lubrication

To lubricate leaf springs or not—that is the question plaguing many fleetmen today as it has since the beginning of the leaf spring. Some do lubricate, but in general engineers agree that unlubricated leaves are desirable since the interleaf friction acts as a shock absorber and dampens the "bound." Passenger car springs are lubricated, but they use shock absorbers.

Overload a Factor in Dual Tire Matching

The importance of dual tire matching has been preached for years, and fleetmen have found that holding duals to size within $\frac{1}{4}$ in. and the placing of the larger diameter on the outside has contributed materially to improved tire life. Mr. H. M. Place, of U. S. Rubber Co., recently provided some interesting information on the subject in an SAE paper read on the West Coast.

"The $\frac{1}{4}$ in. difference in diameter means $\frac{1}{8}$ in. difference in the undeflated radius," he said, "and this in turn means about $\frac{1}{8}$ in. difference in rolling (TURN TO PAGE 14, PLEASE)



WAGNER CoMaX BRAKE LINING for longer mileage....

Join the big parade that's rolling ahead swiftly and safely with Wagner CoMaX—the brake lining that is unsurpassed for quick, safe, smooth stops.

This top-quality lining does not compress or swell, and brakes relined with CoMaX will operate for longer periods without readjustment because CoMaX wears slowly

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INDUSTRIAL CRANE BRIDGE BRAKES

At Your Service

Continued from Page 10

radius. Among the larger truck tires (8:25-20 and up) it takes a change of about 600 lb in the load to cause $\frac{1}{8}$ in. difference in the rolling radius when the tire has already been loaded to capacity. Thus, it comes about that the larger of two dual tire mates having a difference in diameter of $\frac{1}{4}$ in. is loaded about 600 lb heavier than the smaller tire when on a flat surface. In the case of a 10:00-20 this is 15% overload. Therefore, it is important to select dual tire mates as near the same size as possible."

Of course there are other factors involved in tire wear with poorly matched duals, and Mr. Place covers them in detail in his paper. But from the standpoint of overload itself, the operator can quickly see why dual tires must be watched carefully in the interest of improving mileages.

Engine Noises Tip Off the Driver

Every mechanic has a working knowledge of engine noises and what they mean in terms of mechanical trouble. However, the driver himself can profit from the ability to interpret engine knocks. For many times it's a toss up whether to drive home a pounding truck or call the wagon. Again, if the driver can put the mechanic on the right track by describing symptoms as they appear under speed and under load, he may well save some shop time. Here's what the driver should know about those knocks:

A low rattling appearing from the crankcase at speeds of approximately 35 mph mean connecting rod bearing looseness in most cases. Removal of the foot from the accelerator and letting the engine fall back will result in a momentary rattle if the rods are loose. Revving the engine at a standstill will produce a rod rattle at the moment the throttle is closed. Unloading a rod bearing by shorting out the spark plug will

stop the knock if the bearing is only slightly loose, but will not if the bearings are really bad.

Main bearing noises appear as a thumping or deep heavy rumble when picking up speed under load. This can be located by holding the engine at a fast idle and goosing it with the accelerator to a speed of about 3000 rpm, at which time a thump will be heard at the crankshaft. It should be remembered that rod, main and camshaft bearings loose enough to sound off will also contribute to low oil pressure and high oil consumption.

Loose piston pins produce a regular sharp metallic tap in the upper part of the engine. When all are loose, the noise blends into a light rattle.

A broken ring or piston land produces a higher pitched sound than a loose pin. It resembles a click and cannot be shorted out by shorting the spark plug. This condition will be most pronounced at deceleration. In a newly overhauled engine this may indicate that the top ring is striking the top groove.

Loose pistons (piston slap) produces a clattering noise more noticeable with a cold engine. This type of noise increases in intensity on acceleration and has no particular pattern coinciding with the engine speed. Collapsed piston skirts and wear to the extent that the pistons rattle also causes high oil consumption and blowby so that this condition should have been found before the noise appears.

Valve noises are usually the result of improper tappet adjustment, and excessive noise is usually not critical except that it indicates the need for a tune up. Valve noises due to unevenly worn lifters, broken heads or stems produce a noise appearing at half engine speed. Distributor and oil pump noises will be localized and can be traced by the origin of the noise. In most cases undue noise at these spots will not be critical as long as there is spark and oil pressure. Noises in the fan and water pump can be isolated by removing the fan belt and again will not be critical but should be called to the attention of the shop at the first opportunity. Spark knock or detonation will show up at heavy load or at high speed. This ping is not critical in moderation but does indicate the need for a spark adjustment, a carbon job or better grade of gasoline.

DRIVING THIS TRUCK . . . SAFELY . . . WON THIS \$25,000 HOME

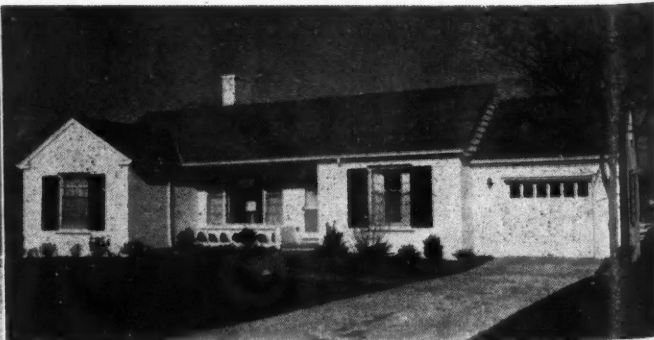
McLean Trucking Co., Winston-Salem, N. C., never lacking in spirited promotional schemes, has done it again. To increase driver interest in their safety program, McLean offered to give a \$25,000 home, completely furnished and landscaped, to a driver who completed the year without an

accident. The winner was drawn by lot just before Christmas.

The home is part of a 355 unit housing project built in Winston-Salem for McLean employees. In addition, the company is continuing its "MAPA" program (McLean Accident Prevention Award) which gives drivers a bonus of

three per cent for every three months they drive without an accident. This bonus is in the form of merchandise certificates redeemable at local stores—an added feature.

The annual award will continue, but the 1952 prizes have not been announced.

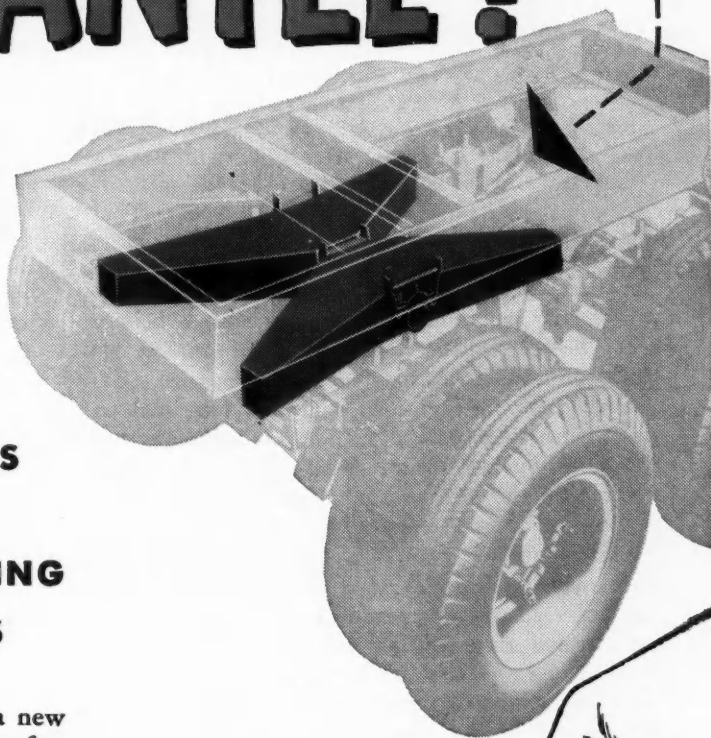


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The OVERLOAD

E D I T O R I A L C O M M E N T

Needed: Better Cost Controls

IT'S only human nature for most of us to think we are doing a good job whether we are, or not. Occasionally, it pays to stop and find out. We do it regularly in running a magazine. We believe every fleet operator should do it in running his trucks and buses.

Such a maxim is doubly true in a time such as this when rising costs, price controls and increased consumer buying resistance are putting a triple squeeze on the guy who is primarily rendering a service—as every fleetman is.

Last month we featured a story based on a cost study made by GMC Truck & Coach Division. This particular survey was made in the dairy industry, but it makes some telling points that can be applied to all forms of truck and bus transportation.

In a typical dairy, delivery costs amounted to only 3 per cent of the sales dollar. But these same delivery costs amount to 16 per cent of all *controllable costs*. In other words, while most costs were fixed, delivery costs could go up or down in almost direct relation to the efficiency of the operation.

In another fleet of the same category, 31 retail trucks were all of the same age, all operating from one garage, and all on reasonably comparable routes. Yet *maintenance* costs alone ran all the way from .47 cents per mile to 2.68 cents per mile. At only 10,000 miles a year that's a spread from \$47 to \$268 just for maintenance. Obviously something was wrong, yet nothing was actually being done about it.

In other vocations delivery costs can run much

higher than the dairy's 3 per cent. It has been said that in the bottlers industry, delivery costs are the largest single item of running the business. Of course, among common carriers, it amounts to practically 100 per cent.

The evidence seems clear that in every type of fleet operation there are things that can be done to bring costs down and profits up. During the year just ended we published a great many articles that further illustrate the point and contribute their bit to corrective action. Among them we find:

A common carrier who cut tire costs 33 per cent.

A bus operator who saved five-man hours a day in cleaning time alone.

A small cartage company that saved 35 per cent on overhaul maintenance costs.

A large common carrier who upped his average vehicle *utilization* to 550 miles a day for all long-haul equipment.

A laundry that cut preventive maintenance cost.

A city bus property which upped gasoline mileage by 20 per cent.

A department store that doubled the periods between engine overhauls.

An over-the-road carrier who cut his insurance bill by \$60,000.

Of course it is too late now to be extending New Year greetings officially. Nonetheless our wish for every reader is that 1952 be a prosperous year. And we are fortunate to be in a position where we can do more than just wish it. Each month we will be on hand with timely comments, among them more on cost studies, to help make that wish come true.

Bart Pawson

Editor

WASHINGTON RUNAROUND

by KARL RANNELLS Washington Correspondent

Revisions of ICC Act Proposed in Senate

The long-awaited Johnson proposals with respect to the revision of the Interstate Commerce Commission Act have been dumped into the legislative mill in the form of 19 bills (S. 2348 through S. 2366). Three represent proposals of Sen. Edwin C. Johnson, D. of Colo., drafted with the help of E. R. Jelsma, staff director of the subcommittee on domestic transportation. Others are "by request" of the ICC and the carriers themselves.

Among the major revisions proposed is S. 2363 which would grant the ICC authority to help in setting up and enforcing standard or uniform size and weight regulations. Regarded as "reasonable" by the measure are: 8-foot width; 12½-foot height; 35-foot length for single units, 50-foot for tractor semitrailers, and 60-foot for other combinations; and axle load, 18,000 lb. (except in states permitting higher limits).

Other major proposals include—imposition of annual fees for issuing operating right (S. 2352); authorization of a Public Roads Administration study to determine what share of highway costs are borne by various classes of vehicles (S. 2365); extension of the long and short haul clause to include highway carriers (S. 2349); would establish specific limits on what an irregular route common carrier may and may not do (S. 2358); and, prohibitions of "outside" haulage by private carriers (S. 2362). See Page 108 for further details.

Tough Trucking Ahead

The load imposed on transportation facilities will increase mightily during the remainder of 1952. In answer to what may be expected by transportation and distribution industries, Mobilization Director Charles Wilson sees it shaping up something like this:

In spite of production cutbacks because of material shortages, consumer goods last year and through the first quarter 1952 continued at 1947-49 levels generally. Shortages will reduce second quarter output another 10 per cent.

Typical of rising transportation demand, Mr. Wilson says that in basic materials alone there will be new production this year of 5,000,000 tons of steel, 11,000,000 tons of iron ore, about 4,000,000 tons in additional metal scrap, and new production of 350,000 tons of aluminum.

But Will There Be Trucks?

Will existing and planned new transportation facilities be able to handle the growing load? The Office of Defense Mobilization thinks there is no danger signs yet in sight which point to a breakdown of transportation. It admits, however, that freighting capacity is losing ground and that over the next few months the

materials for new trucks and other facilities probably won't "permit a sufficiently high production level to keep pace with requirements."

With respect to second quarter allocations for new truck manufacturers, material allocations were issued permitting 240,000 vehicles no change from first quarter. There's a joker, however. Enough steel is being allocated for truck and trailer goals but copper and aluminum supplies will be less than needed—calling for ingenuity on the part of builders to hold up output.

Tire Discounts OK'd on Carload Lots

Just what effect the Federal Trade Commission's new rule on quantity discounts on tires will have on the trucking industry is not yet clear. Briefly, the FTC rules that effective April 7, "a carload quantity of 20,000 pounds ordered at one time for delivery at one time" is to be the rule for tire quantity "price differentials"—discounts to you and me.

Being able to wangle discounts for buying tires in volume has been one means used by fleet operators in keeping down overhead. Under the ceiling now imposed, an operator must be able to order roughly about 150 unmounted tires and tubes of the 10.00 by 20 class (or equivalent in other sizes) in order to be eligible for a discount.

Mail By Truck Proves Satisfactory

Not only is the Post Office Department more than satisfied with short-haul mail transportation by truck, but by the end of this year it expects to be saving up to \$100,000,000 annually through the trucking contracts. This amount is the difference between the estimated cost of trucking and rail-mail contracts, in face of rail rate increases over the past year.

New studies are being made, and previously refused truck mail routes are being reviewed by the Department. Those routes in operation, in every case, have been efficient and satisfactory, the Department says.

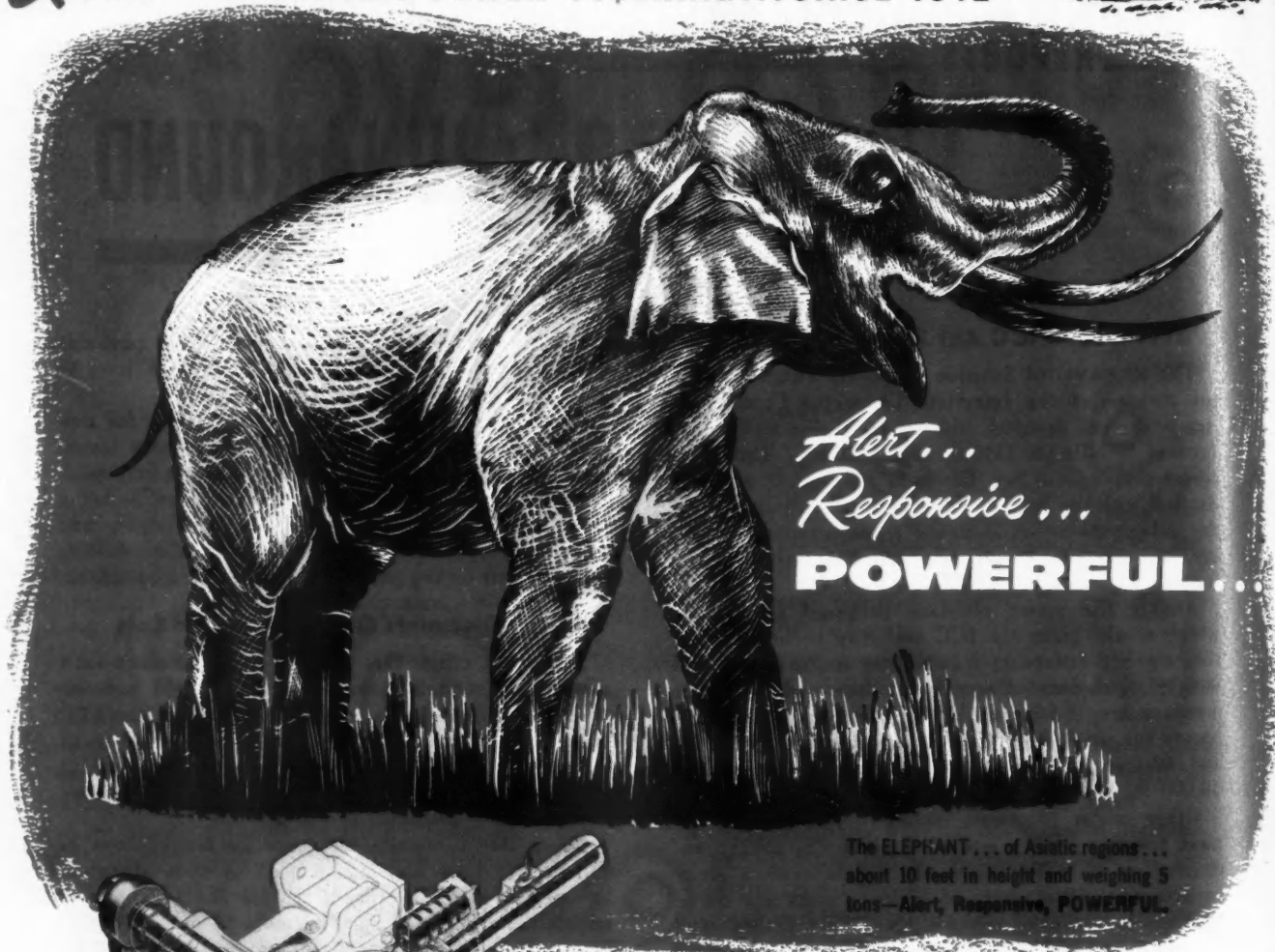
Tax Write-Offs Tightening

Approvals of fast tax write-offs for expansion of highway transportation and terminal facilities are to be issued now only on presentation of the best of evidence of necessity and distress. Even then, such applications must give way to applications for diesel locomotives, freight cars, tug boats, barges, ore boats and cargo planes—all of which are on the government's list for priority processing.

Construction of warehouses and terminals even without the government aid of tax certificates or loans is also in for hard sledding. Any sizable construction project must still have NPA approval, and DPA has turned thumbs down on all commercial building except on proved extreme necessity.

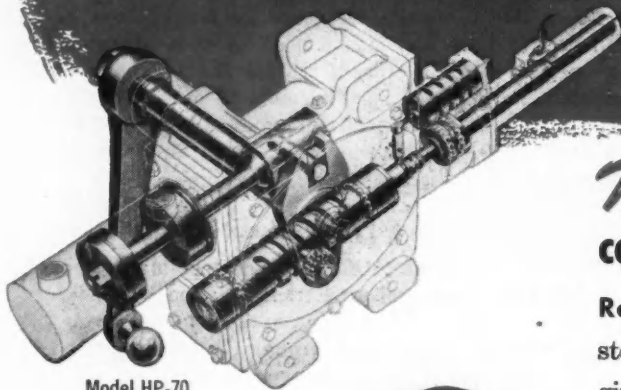
Ross

HYDRAULIC POWER STEERING...SINCE 1942



Alert...
Responsive...
POWERFUL...

The ELEPHANT... of Asiatic regions...
about 10 feet in height and weighing 5
tons—Alert, Responsive, **POWERFUL**.



Model HP-70
One of Latest
Developments in
Ross Hydrapower
Steering Program

HYDRAPOWER

Ross

Cam & Lever STEERING

ROSS GEAR AND TOOL COMPANY • LAFAYETTE, INDIANA

Now... **EASIER, SAFER STEERING FOR
COMMERCIAL VEHICLES AND PASSENGER CARS**

Ross Hydrapower not only takes the *physical effort* out of steering—with increased safety—but Ross Hydrapower also gives in fullest measure the *alert, responsive* quality known as “road sense”—an outstanding characteristic of Ross Steering for almost a half century.

Ross pioneering in assisted steering dates back to 1942 when Ross hydraulic power steering was chosen to solve the Army's then toughest steering problem—the 50-ton tank retriever.

While most current Ross Hydrapower production is devoted to military needs—as government requirements permit, Ross Hydrapower will bring new steering *ease, safety* and *satisfaction* to additional commercial vehicles and passenger cars.

DETROIT DISPATCH

by LEN WESTRATE Detroit News Editor

Two Automatic Drives

G.M.C. Truck and Coach has introduced a forward control $\frac{3}{4}$ -ton delivery truck equipped with fully automatic transmission as standard equipment. See page 196. Ford early in February announced that the Fordomatic transmission will be available as optional equipment on its panel delivery model. The GMC unit will be equipped with the new dual-range Hydra-Matic drive and also will feature a parking brake which is set by foot pressure and released by a finger tip button on the instrument panel. The new model has a GVW rating of 7000 lb.

Brake Problems Grow

The truck industry may be in for legislative trouble on brakes during the next year or two. Actually, state governing bodies have been holding off such action, to give manufacturers an opportunity to study the problem of truck brakes. The brake committee of SAE has conducted some tests during the past year, but results so far as can be learned were inconclusive. There now is evidence that state legislatures may not wait too much longer before putting truck brake legislation into the hopper. The question of adequate brakes is a tough one, since space limitations complicate building in enough stopping power and brake life to handle the requirements of present day weights and speeds. A particular problem is the effect of heat distortion in metal brake drums. At least one engineer thinks that friction brakes may not be the ultimate answer but that some type of electro-magnetic clutch mechanism running in oil may have to be developed. A particularly good feature of such a device would be the ability to cool the oil.

Registrations Decline Sharply

While official tabulations will not be complete for some time, there is every indication that 1951 civilian truck sales, as endorsed by new truck registrations, fell below one million despite the highest production on record (about 1.4 million). Such a figure would be below both 1950 and 1948 and would indicate the number of trucks going for military use and sizably stepped up exports last year.

Better Instruments Afoot

There is a movement for better instruments. Engineers think that there is some validity in complaints that panel instruments are not always easy to read and that there is much that could be done to improve

them. Among possibilities being considered are angle mounting the instrument panel, use of more flashers or buzzers to indicate dangerous operating levels, and calibration of instruments so that in normal operation needles stand in top vertical position to permit easy scanning.

... And "Balanced" Engines

Truck engineers are giving more consideration to "balanced design" of engines as a step toward reducing maintenance costs. At present, life expectancy of some parts is many thousands of miles shorter than for some others. The aim is to increase the life of short-lived parts so that all major components can be economically replaced at the time of major overhaul, rather than to tear down the engine two or three times as parts of varying life expectancy fail. It probably won't come right away but there certainly is a lot of room for improvement.

Tire Discounts Cut

Fleet operators who buy tires from large dealers at sizable discounts are watching the outcome of the fight between major tire companies and FTC. The government agency has decided to invoke its quantity-limit rule, which sets a 10-ton carload as the *largest* quantity on which manufacturers can give a discount. In other words, larger quantities would get no bigger discount. Goodrich already has indicated it will take court action against the order, and other companies will undoubtedly follow suit. If the order stands it might materially affect the kind of discounts now obtained.

... But Prices May Be Lower

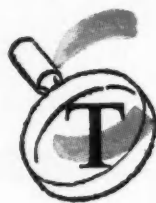
Lower prices for truck tires could happen soon if price of natural rubber should take a sharp dip this year as a result of a substantial reduction in government buying for the national stockpile, as indicated by President Truman. Currently the Government is the only importer of natural rubber, and its activities have helped hold up the price on the world market.

Reo Offers LP Equipment

Reo is now offering liquid petroleum gas equipment as a factory-installed option on its model F-22 trucks that are equipped with 331 $\frac{1}{8}$ cu in. engine. The company has also released for production an LP conversion kit which can be adapted to the 331 engines already in use.

Sinclair Litholine

PROVED *in wheel bearing tests*



THE critical test of any multi-purpose grease is in its performance in the wheel bearings of heavy-duty mobile equipment. Sinclair LITHOLINE® Multi-Purpose Grease has been proven an outstanding heavy-duty wheel bearing lubricant in exhaustive, year-round tests.

One test was made in a Mid-West city bus line. An inspection after 20,000 miles showed the bearings were smooth and well-lubricated. There were no signs of scratching, pitting, heat spots, gum or varnish. Sinclair LITHOLINE's original character was well-maintained — there was no slumping in the bearing or housing, no softening or liquefying, no separation and no leakage through seals.

This safe, sure lubrication of one of the most vital points of heavy-duty mobile equipment... and its outstanding performance at all other lubrication points... prove that Sinclair LITHOLINE is a real multi-purpose grease... winter and summer.

Send for a free folder describing demonstrations of the superiority of LITHOLINE. Contact your local Sinclair Supplier or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

for every grease lubrication job... **SINCLAIR**

CCJ REPORTS

on News of the Industry

Ton-Mile Tax Is Forecast for Massachusetts

The 1952 session of the Massachusetts legislature is expected to receive a bill calling for a mileage tax ranging from 6 mills per mile for weights over 18,000 lb to 24 mills for weights over 62,000. No details of the proposal or who will be its sponsors are available at the present time.

While Its Neighbor State Prepares to Fight

The Empire State Truck Operators and Allied Industries Committee is the name of a new organization now being formed to fight anti-truck legislation in New York. They have as their objective: (1) the repeal of the weight-distance tax enacted in the 1951 session; (2) repeal of the new motor truck registration fees based on gw, also enacted in 1951; (3) amendments to the vehicle and traffic law as applied to axle weights and bridge formulae; (4) secure enactment of legislation shifting overloading responsibility upon the owner rather than the driver; (5) make it impossible for cities or counties to impose a "use tax" on motor vehicles; (6) seek a constitutional amendment outlawing highway tax diversion; (7) oppose any proposed increase in any motor vehicle tax until this anti-diversion amendment has been ratified; (8) oppose legislation which would penalize motor trucks for the benefit of competing methods of transportation; (9) support periodic inspection, and (10) encourage objective highway study.

Research Board Tackles Weighty Highway Problems

Fleet operators who may be concerned at the seeming lack of research on highway problems can take heart in the news that more things are being done

than realized. At the 31st Annual Meeting of the Highway Research Board, middle of last month—no less than 183 separate papers were presented in 29 different sessions.

Subjects ranged all the way from "The Effect of Pattern Distribution on Perception of Relative Motion in Low Levels of Illumination" to "Cracking of Concrete in the Tuscaloosa Lock in Alabama."

But in between these extremes were many discussions that should some day point the way to a better understanding of the problems arising between highway builders and highway users. There was one whole discussion session on the subject of Sufficiency Ratings (see CCJ, Dec. page 64) and a very complete briefing of the problems involved in the Economics of Motor Vehicle Sizes and Weights by C. F. Rogers of the Bureau of Public Roads.

Comments concerning the Maryland Road Test were extensive but not releaseable at publication date. Meanwhile plans on future road tests are going ahead. A complete report on the status of these developments will be found on page 51 of this issue.

Changes Announced in Battery Regulations

After March 1, the National Production Authority forbids manufacture of storage batteries which will not last at least 18 months or those which are of the special or deluxe high ampere hour type. Such production is banned under a new order, M-93.

Meanwhile, a price increase loomed for replacement batteries as the Office of Price Stabilization granted manufacturers a 3 to 6 per cent ceiling price increase to make up for higher costs of labor and material. At retail, it was estimated that it would boost prices to the user from 65 cents to 95 cents a battery.

(TURN TO PAGE 198, PLEASE)

DATES and DOINGS

FEB. 14—Empire State Highway Transportation Assn. Annual Dinner, Hotel Statler, New York, N. Y.
FEB. 26-28—National Transport Vehicle Show and Fleet Maintenance Exposition, W. 62nd St. & Columbus Ave., Armory, New York, N. Y.
FEB. 28-29—American Transit Assn., Region 1 Meeting, Hotel Statler, Boston, Mass.
FEB. 28-29—Annual Convention, Ohio Trucking Assn., Inc., Deshler-Wallick Hotel, Columbus, Ohio.
FEB. 28-MAR. 2—Pacific Automotive Show, Pan Pacific Auditorium, Los Angeles, California.
MAR. 17-18—Motor Vehicle Fleet Supervisors Courses, The Engineering College, University of Washington, Seattle, Wash.
MAR. 18-21—American Transit Assn., Region 3 Meeting, Carter Hotel, Cleveland, Ohio.
MAR. 20-23—10th Annual Southwest Automotive Show, Sam Houston Coliseum, Houston, Texas.
MAR. 22-APR. 6—Chicago International Trade Fair, Navy Pier, Chicago, Ill.
MAR. 24-28—American Transit Assn. Region 5 Meeting, Chase Hotel, St. Louis, Mo.
MAR. 28—Annual Convention, Motor Vehicle Assn. of Alabama, Inc., Thomas Jefferson Hotel, Birmingham, Ala.
MAR. 28-29—Annual Convention, Wyoming Trucking Assn., Hotel Henning, Casper, Wyoming.
MAR. 29—Annual Convention, Arizona Motor Transport Assn., Hotel Westward Ho, Phoenix, Arizona.

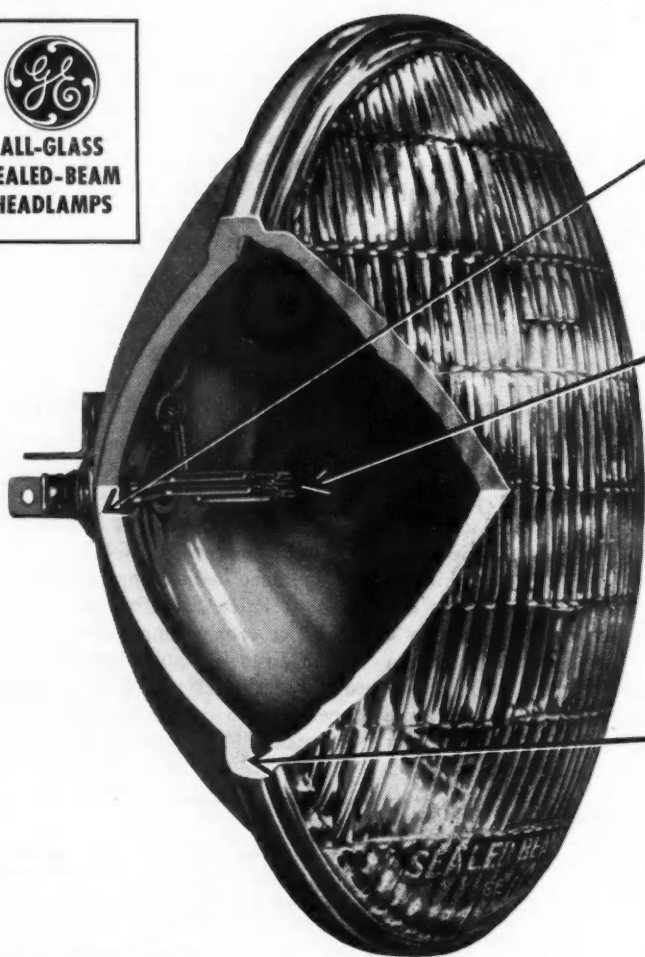
APL. 1-4—Greater New York Safety Council Annual Convention, Statler and New Yorker Hotel, New York, N. Y. (Headquarters—Hotel Statler).
APL. 7-9—Seventh Annual Meeting and Lubrication Show, American Society of Lubrication Engineers, Hotel Statler, Cleveland, Ohio.
APL. 7-10—American Gas Assn. and Edison Electric Institute Joint Motor Vehicle Committee Annual Meeting, Benjamin Franklin Hotel, Philadelphia, Pa.
APL. 25-28—New England Regional Automotive Show, Mechanics Bldg., Boston, Mass.
MAY 5-7—American Transit Assn., Region 7 Meeting, Multnomah Hotel, Portland, Oregon.
MAY 6-8—Fourth Highway Transportation Congress, National Highway Users Conference, Mayflower Hotel, Washington, D. C.
MAY 12-15—American Trucking Assns. Spring Meeting, Deshler-Wallick Hotel, Columbus, Ohio.
MAY 15—Annual Convention, Rhode Island Truck Owners Assn., Hotel Narragansett, Providence, R. I.
MAY 15-17—Annual Convention, Georgia Motor Trucking Assn., Inc., Hotel Oglethorpe, Savannah, Georgia.
MAY 20-23—American Transit Assn., Region 2 Meeting, Bellevue-Stratford Hotel, Philadelphia, Penna.
MAY 22-24—Annual Convention, Washington Motor Transport Assn., Inc., Hotel Olympie, Seattle, Washington.

All-Glass headlamps specified for new army tanks!

G-E All-Glass construction withstands toughest treatment... makes possible high wattage in small-target lamps

The designers of new medium tanks for the army found that one type of headlamp combined all the important features they were looking for. **THAT ONE IS THE ALL-GLASS HEADLAMP!**

And the features that make All-Glass headlamps suitable for army tanks are the same features that make General Electric All-Glass headlamps an outstanding value for passenger cars:



They're tough! The thick, hard glass of the General Electric headlamp provides a firm base for lead-in wires. G-E filaments are anchored in a vise-like grip... can't shake loose.

They're bright! Because G-E headlamps are all one *big* bulb, there's plenty of room inside for heavy, rugged filaments. For the army, this means tank headlamps can be made compact without sacrificing light output. The lamps on the new tanks are only 4½ inches in diameter, yet they contain a 100-watt filament for upper beam and 50-watt filament for lower beam.

They DO NOT GROW DIM! Since both G-E lens and reflector are made of hard glass fused together, dirt and moisture can't get inside to tarnish reflecting surfaces. Tests prove that G-E All-Glass sealed beam headlamps give an average of 99% as much light just before burning out as they do when new.

**Follow the example of tank designers:
Install General Electric All-Glass headlamps**

GENERAL  ELECTRIC



First Freight Handler: "Holy tarnation, hasn't that new gal billing clerk got a big mouth?"

Second Ditto: "True, brother, true. The last time I saw a mouth like hers there was a hook in it."

CCJ

The tank fleet operator was in town for a series of special meetings on preventive maintenance procedures. One of his fellow truckmen considerably gave him a telephone number.

Confidently, the tank trucker stopped in in the apartment lobby to call on the house telephone. "Hello, baby," he said, "this is Gideon. A friend sent me."

"There's so much noise on the line I can scarcely hear you," came the sultry voice of the girl on the other end of the line. "Who did you say it is?"

"Gideon, honey. G for gin, I for ice, D for drinking, E for excitement, O for O-golly, and N for necking. Got that, honey?"

"Well," answered the girl. "Not all of it, but come on up, anyhow."

CCJ

Steno Lou: "The most amusing incident you could ever imagine happened down at the shoe store where I went shopping during my lunch hour."

Steno Sue: "Tell me about it."

Steno Lou: "It's really too funny for words. The only clerk on duty at the time had a terrific lisp. When I told him I was interested in trying on Model 203 he said, 'Thit down please, while I look up your thize.'"

Automotive Parts Salesman: "How's your family getting along, Bill?"

Auto Parts Manager: "Fine, just fine, with the exception of my youngest son. He ate half of his sister's dictionary the other day and we had to give him a whole bottle of castor oil."

Parts Salesman: "How is he getting along?"

Parts Manager: "We haven't had a word out of him all day."

CCJ

Municipal Judge: "What is your trade, my good man?"

Diesel Mechanic: (Caught in a raid) "I am a mechanic and a first class machinist, your honor."

Judge: "What were you doing in that establishment of questionable repute when the police entered?"

Diesel Mechanic: "I was making a bolt for the door, sir."

CCJ

FREIGHT CLAIM CLERK: "DO YOU KNOW HOW TO MAKE A STANDING BROAD JUMP?"

TRAFFIC RATE CLERK: "I SUPPOSE STICKING HER WITH A PIN WOULD DO THE TRICK."

CCJ

"Sam, Sam," whispered the Shop Foreman's wife, poking her snoring husband in the ribs. "Wake up, wake up; there are burglars in the kitchen and they are eating all my pies."

"Well, what do we care," yawned the Shop Foreman, "so long as they don't die in the house?"

The Freight Checker and the Fork Lift Operator were next door neighbors. Every morning their wives would meet in the rear yard for a little session of back-fence gossip. "My goodness," said the Freight Checker's wife, "I'm so excited! Harry is going in for anthropology. I always knew he would indulge in something worthwhile."

"How did you find it out?" inquired the lift operator's wife.

"Oh," said the excited wife, "I found some tickets in his coat with the inscription 'Mudhorse 15 to 1', and when I asked Harry about them he explained they were relics of a lost race."

CCJ

A big, husky man walked up to the office of the trucking establishment and asked for a job outside washing trucks.

"Are you a clock watcher?" asked the Terminal Manager.

"No," answered the man, "I don't think much of inside work. But I'm a whistle listener."

CCJ

Freight Checker: "I'd like to see something cheap in a felt hat."

Clothing Salesman: "Certainly, sir. Try this on, sir, and the mirror is on your left."

CCJ

STENO LOU: "IS ANYONE LOOKING?"

STENO SUE: "NO. NOT A SOUL."

STENO LOU: "THEN I'M NOT GOING TO FIX MY CARTER."

"In Memory's Garden"

Safety Sadie: "My kid sister has been invited to her first formal dance. She has been pleading for a strapless gown, but mother won't hear of it. Mother says she is too young for a strapless, sister insists she isn't."

Catty Cora: "Well, honey, if it was me here's what I'd do. Why don't you take her down to the department store and let her try on a strapless. If it doesn't fall down, she's old enough to wear it."



The bachelor Maintenance Superintendent was out with a beautiful brunette. It was his second date and he felt pretty sure of himself. However, he could not understand the sudden change in his girl friend's behavior.

"Remember, darling?" he cooed, "last night you said there was something about me you could love."

"Uh huh," she yawned. "But you done spent it all."

Resume Work

now

LEE 5-RIB

"road-
trucking



©1952

Southeastern Idaho is Site of Flexible Road Test

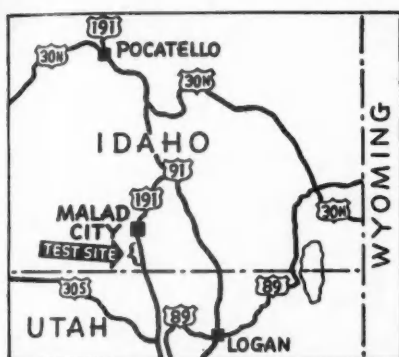
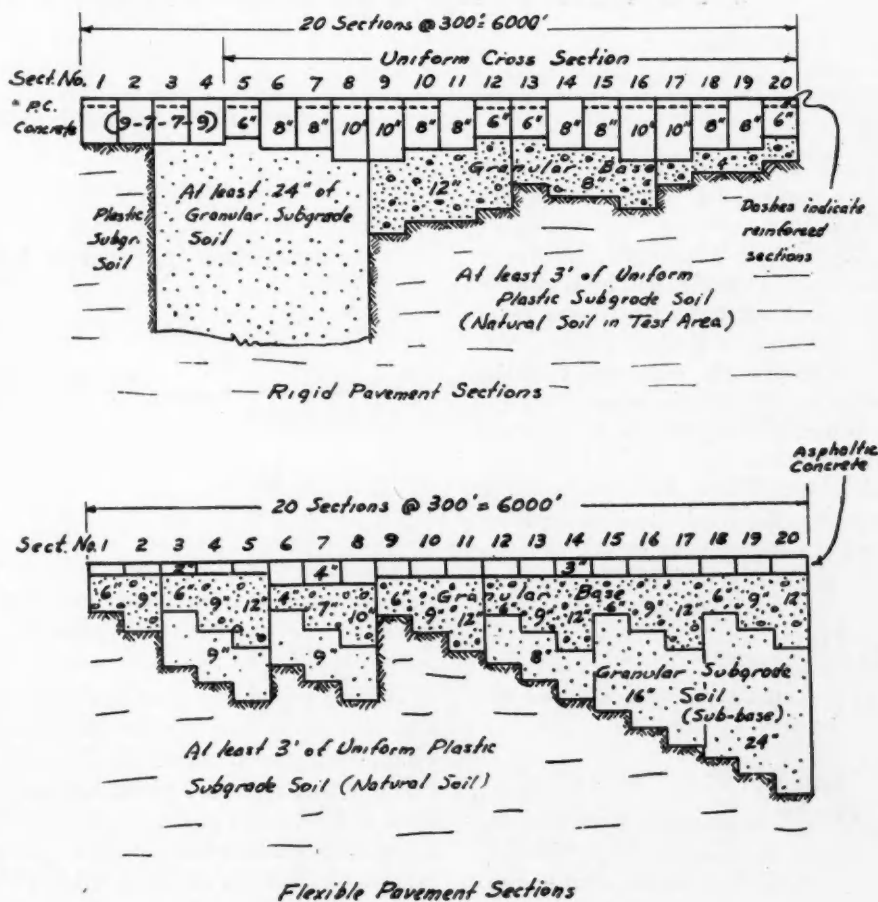


FIG. 1. General location of flexible road test this summer shown (arrow)

Construction of asphaltic concrete highway will begin in spring, tests to start during August. Comprehensive test plans underway

FIG. 2. The much discussed Comprehensive Road Test, greater in scope than the Idaho and Maryland tests, is in the initial planning stage. Upper of two sketches shows tentative plans for construction of rigid pavement section. Lower sketch shows suggested flexible pavement construction. Site is undetermined.

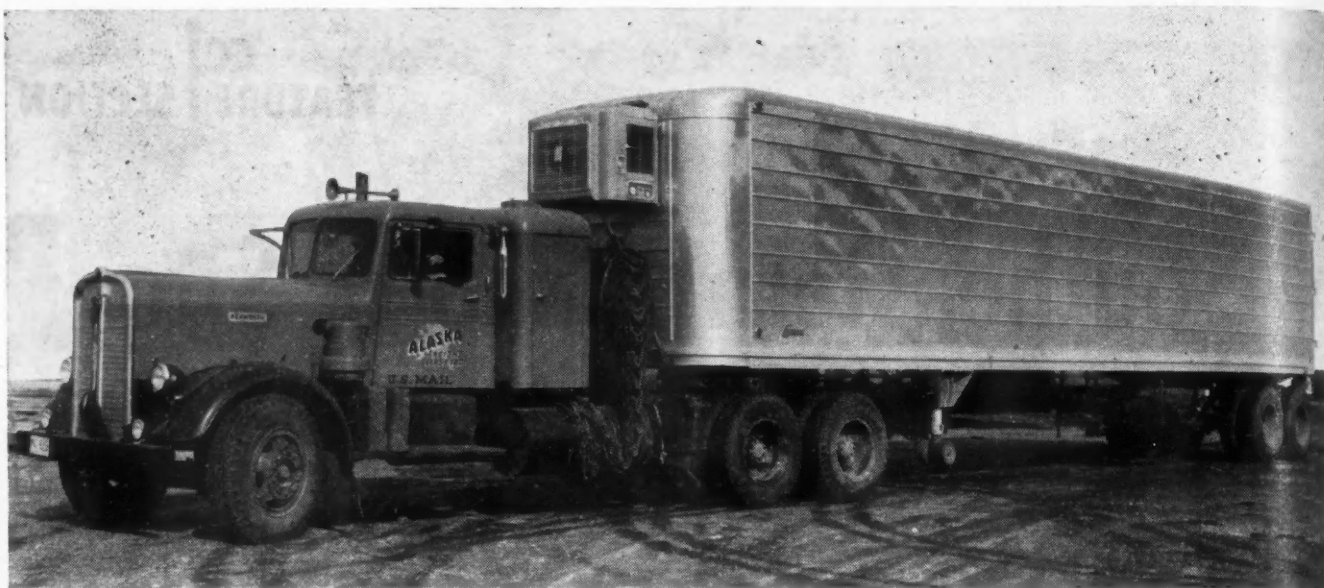


TWO NEW ROAD TESTS, similar in scope to the much-discussed Maryland Road test but on a much better controlled basis, are shaping up. The first, for which plans are now established, will be confined to flexible paving. The second, will follow at a later date and will be the most comprehensive yet conceived. Both will include study of pavement surfaces and subgrades as well as the effect of various axle loadings.

Site of the flexible pavement test will be southeastern Idaho, a short distance below Malad City and about midway between Pocatello and Salt Lake City.

This test will not be held on any existing highway. A new road will

(TURN TO PAGE 102, PLEASE)



Equipped for every emergency which nature can create in sub-zero temperature, this Kenworth tractor and its 35 ft trailer is used in the Fairbanks run

ALASKA FLEET

Proves Impassable Pass is Passable

VAS THE RESULT of pioneering work carried out by Alaska Freight Lines, Inc., during the winter of 1949-50, the Richardson Highway into Valdez, Alaska, will be kept open again this winter by the Alaska Road Commission—a project believed virtually impossible until the trucking company proved otherwise.

Use of the highway throughout the winter makes it possible to truck supplies from Valdez, six days by water from Seattle, Wash., to interior Fairbanks, a distance of only 500 miles over a good gravel highway, rather than use the 3000 mile rail-highway route from Seattle via Dawson Creek, British Columbia, and Yukon Territory in Canada, on none-too-good Alaskan highway.

Cost and Time Third Less

VALDEZ is open the year around, as are all Alaskan ports with the exception of those in the Bering Sea

Fleet invests own funds, buys heavy equipment, opens frozen mountain road declared unusable in winter by highway commission

By Ray Bloomberg

and Cook Inlet. Cost from Seattle to Fairbanks via Dawson Creek is three times as much as from Seattle to Valdez to Fairbanks. Time via Valdez is about one-third less.

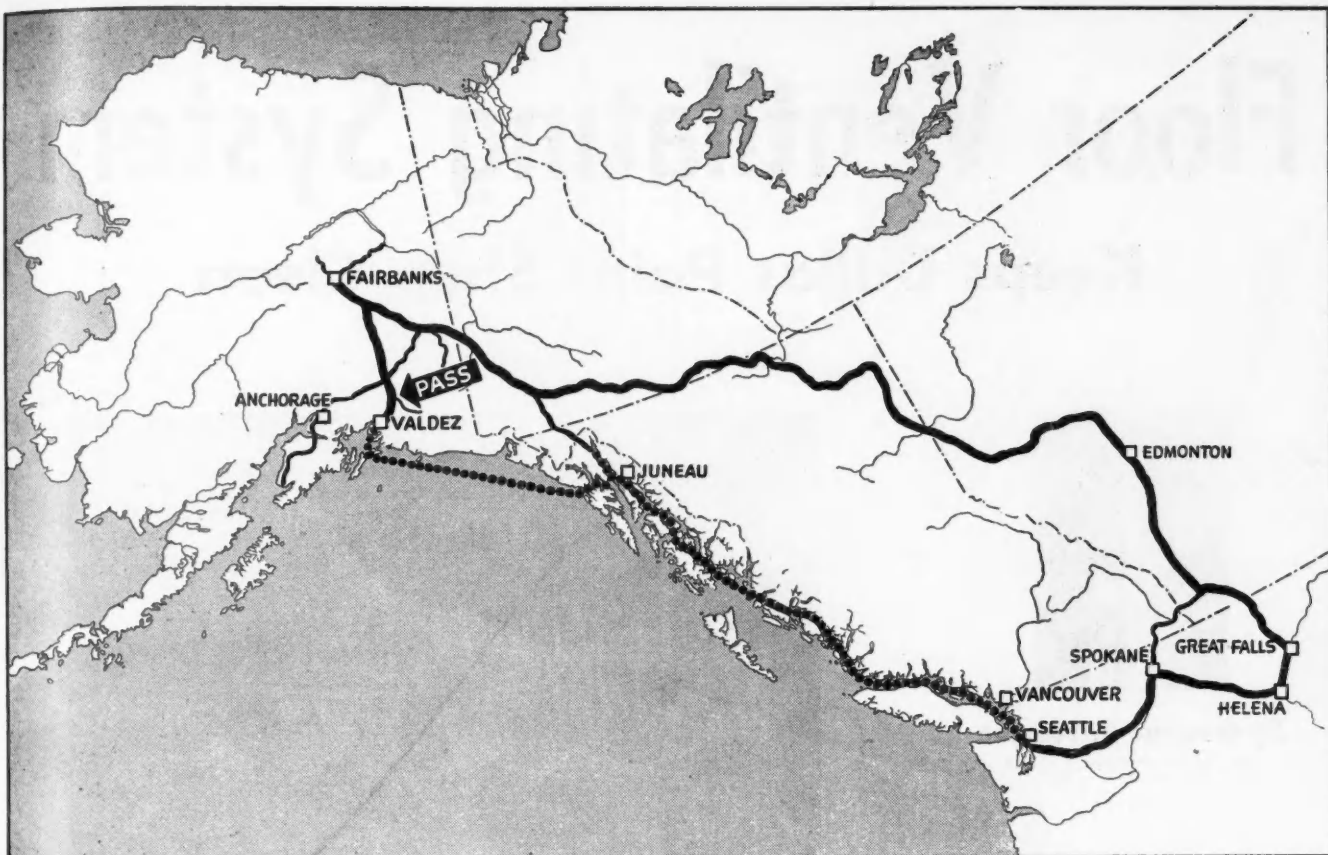
There is a highway from Seattle to Dawson Creek and Alaska Freight Lines, Inc., uses it some. Unprofitable load limits are a limiting factor. Furthermore, much of the freight now going through Dawson Creek originates in the Midwest and East. Alaska

Freight Lines, Inc., trucks a little between Great Falls and Dawson Creek.

Impasse Was Thompson Pass

BARRIER to year-round use of the Richardson highway was Thompson Pass at Thompson Falls, 26 miles north of Valdez. Although this pass has an elevation of only 2722 ft above sea level, it is nearly 2000 ft above timber line. Heavy snows, averaging

(TURN TO PAGE 94, PLEASE)



(Top) Outline map shows saving in road miles made possible by using boat and truck as compared with the rail-truck route shown in black. The "impassable" pass is shown (see arrow)

(Above) An Alaska Freight Lines truck combination at the summit of the impassable pass

(Right Above) One of the many pieces of snow equipment chewing its way through a drift

(Right) Alfred J. Ghezzi, Jr., president of Alaska Freight Lines, Inc. (center) at Valdez with Army Quartermaster officer and a group of husky mountain drivers at the ship landing



Floor Ventilating System

Keeps Dallas Paint Shop Clean



By George F. Tongue

Supt. of Maintenance & Const.
Dalls Railway & Terminal Co.
Dallas, Texas

VISITORS in our paint shop often have remarked about the total absence of paint spray either in the air or on the walls, ceiling or roof. The secret lies in the fact that while most paint shop ventilating facilities draw air up, ours draws it down.

With 30,000 cu. ft. of air per minute being pulled in through full-length roof monitors and out through the special under-floor duct system, there is sufficient velocity to keep the air completely free of spray, yet not enough movement to interfere with spraying operations. As a matter of fact our painters seldom use masks or respirators and can spray four different colors at once with absolutely no tendency to mix.

While the shop was rebuilt, late in 1947, to include these features, it has never been publicly described. We have COMMERCIAL CAR JOURNAL's art staff to thank for the accompanying phantom view (based on construction blue prints) which shows the basic features.

As paint-laden air is drawn down into the under-floor trench system, it is washed by the water sprays. Solid particles are precipitated into the running water at the bottom of the trench. This water flows by gravity



Photo taken from just inside right main door shows two buses being sprayed in shop's long center lane. One duct is directly under spray guns

Moving air and water in unique floor duct system

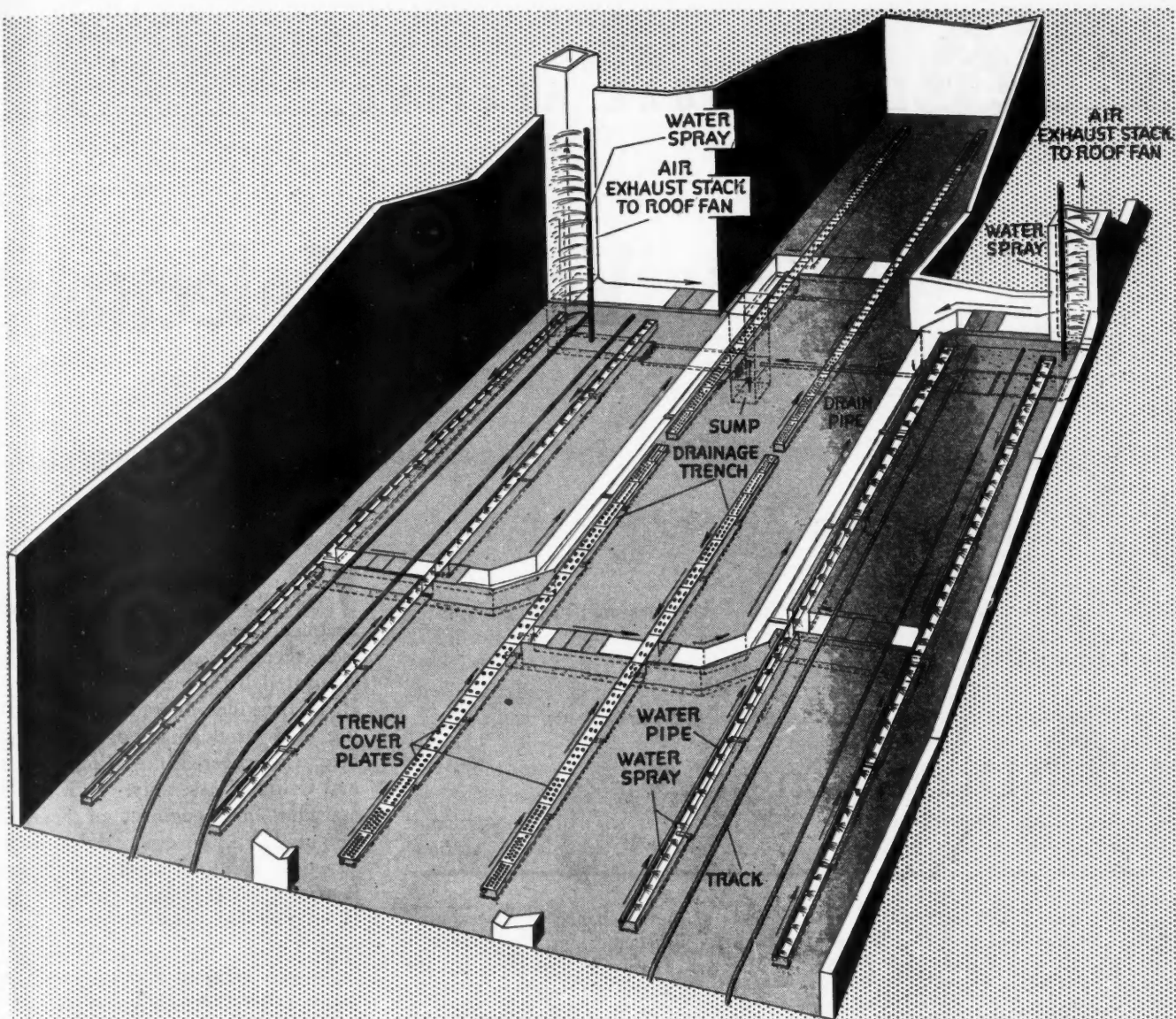
to the central sump while air is taken up the vertical stacks, washed by additional sprays in the stacks and dissipated to the outside air completely clean. Thus, there is no chance of paint spray being forced out doors where it might come to rest on neighboring buildings or vehicles.

Four Units in Trench System

FUNCTIONALLY, the trench arrangement is in four separate

units; one for each of the side bays and two in the middle bay. They are tied together in pairs (right and front center; left and rear center) to the two vertical exhaust stacks. All four drain the water to a central sump, from which paint scum is removed every few operational hours, and from which water is recirculated through the spray system.

Each of the concrete trenches under the floor plates is approximately 2 ft



Schematic diagram with phantom floor shows all essential details of trench system. Normally only the domino-like steel plates (see photo at lower right) would be visible. Plates on side lanes have been removed to show details of spray and water flow which is recirculated from central sump

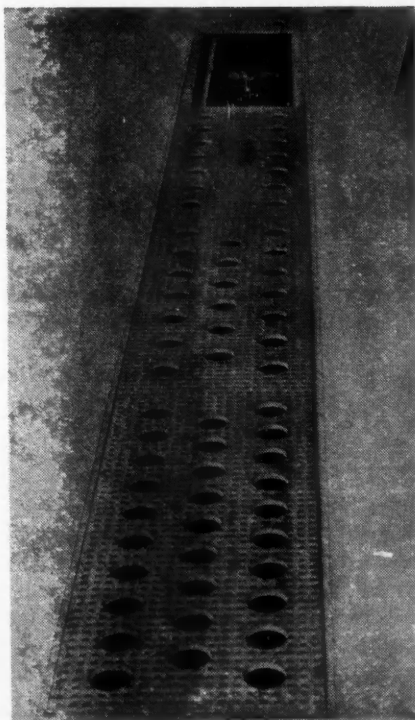
permit high-volume output in super-clean paint shop

wide, and varies in depth from 1 ft 4 in. at the far ends to 3 ft 6 in. at the center, where it joins the central duct. The graduated drops provide a natural flow for the water, but since a small dam (about 2 in. high) is placed at each drop, there is always at least two inches of water in the bottom of all parts of the trench. This provides a place for paint to settle after being washed from the air by the water spray in the trench.

Yet the flow of water is sufficient to carry this accumulation over the dams and on down to the sump, requiring only a very infrequent clean-out of the entire system.

The steel floor plates over the trenches (only the center ones are shown in place in the drawing) are drilled with 2-in. holes. To provide for a uniform flow of air to all parts of the trench, the plates immediately

(TURN TO PAGE 160, PLEASE)





Piston Rings



Valves



Bearings



Steering



Diesel Engines

Vehicle Selection,

Covered by Experts

OF PARTICULAR interest to fleetmen was a symposium on commercial engine maintenance procedure sponsored by the T and M Activity. H. G. Braendel, director of engineering and production, of Wilkening Mfg. Co. covered the Ring, Piston and Cylinder Assembly. W. E. Thill, assistant chief engineer of Federal-Mogul Corp. covered Maintenance Practices With Regard to Engine Bearings and J. A. Newton and N. L. Hoertz, of Thompson Products, Inc., read a paper on Considerations for Commercial Valve Maintenance. Excerpts from these and other papers follow.

Mr. Braendel—

The most serious problems, he said, facing the heavy-duty engine operators today is top groove and top ring wear in aluminum pistons. Two distinct conditions occur. The sides of the top groove start to wear first; then the sides of the ring wear to such an extent that the cross section is reduced considerably if the ring is made of a high strength material. Ultimately, breakage occurs due to the pounding within the side groove. Another sequence is found in which the sides of the ring wear first and then both ring and groove continue to wear from that point on. The end result is the same.

Although we are not completely sure of the cause, we have found one solution. This consists of employing a Ni-resist insert, bonded to and cast into the piston. We have essentially provided a cast iron groove for the

More than 5000 automotive engineers settled down over Detroit, January 14 to 18, to make the SAE Annual Meeting a red letter week in the year's activities. Meetings were held in the Sheraton-Cadillac, but delegates overflowed into eleven other Detroit hotels and two hotels in Windsor, Canada. Nearly 60 technical papers sponsored by Body, Transportation and Maintenance, Truck and Bus, Diesel Engine, Fuels and Lubricants and other Activities were presented at the various sessions. Represented as usual were members of the armed forces, among them Major General F. H. Griswold, of the Munitions Board; Col. H. H. D. Heilberg, of the Armored Field Forces; and Lt. Col. E. A. Guilbert, of Military Air Transport Service.

The Annual dinner held at the Masonic Temple, featured a well-known speaker, Dr. Kenneth McFarland, educational consultant and lecturer, from General Motors Corp. One of the highlights of the meeting was the presentation of the 1950 Horning Memorial Award to D. L. Pastell, of duPont. The award, presented annually for outstanding contributions to man's knowledge of the science of matching fuels and engines, was granted to Mr. Pastell on the

basis of the excellence of his technical paper, "Precombustion Reactions in a Motored Engine," presented at the SAE Summer Meeting.

Election of Dr. Daniel P. Barnard IV, research coordinator of Standard Oil Co. (Indiana), Chicago, Ill., as president of SAE for 1952 was hailed with enthusiasm. President Barnard has dedicated years to the matching of fuels and engines, winning the Horning Memorial Award in 1949 for distinguished active service in this field. Dr. Barnard studied chemical engineering at University of Delaware, graduating in 1919. He entered Massachusetts Institute of Technology, achieving degrees in Master and Doctor of Science, and continuing research in the MIT laboratory of Applied Chemistry. He has been affiliated with Standard Oil since 1925 and a director of Coordinating Research Council since its incorporation, serving as president during '48, '49 and '50. Dr. Barnard succeeds Dale Roeder, of Ford Motor Co., who served as president in 1951.



Operation, Maintenance—

Representing Fleets, Vehicle Manufacturers, Oil Companies, the Armed Forces

top ring. Ni-resist is employed to reduce the disparity of the coefficient of expansion between the aluminum and the insert to a minimum so that the separation of the two materials would not fatigue the bond or the metal immediately adjacent to the bond.

Recently, a problem of rather serious proportions has appeared in the operation of heavy-duty commercial engines during the first several thousand miles of operation of either new or rebuilt engines. Many operators have experienced a sharp increase of failures because of lack of seating of the rings and the cylinders during this initial operating period. In heavily loaded engines which are critical on cylinder distortion this will result in excessive blowby which will overheat the piston, stick the rings, and may induce scuffing and scoring of the piston ring and cylinder assembly. In engines which are not critical with regard to cylinder distortion, or which are not heavily loaded, it results in excessive oil consumption for extremely long periods of time, sometimes indefinitely.

Fortunately, this problem can be easily solved by using a non-additive, or a lightly additive lubricant during the first several thousand miles of operation so that the initial seating, which is absolutely essential, can take place. After this, the highly fortified oils can be used to provide the desired improvements expected of them. Perhaps the oil companies can develop additives which will not have this effect and still provide the other

desired characteristics. In any case I believe the operator should be warned that he may experience serious difficulties if he uses these oils during the running-in or seating period.

Until approximately two years ago we had considerable variance between manufacturers on the method of installing dry sleeves. Some manufacturers used a slip fit, some a hand pushed fit, and some an interference fit of several thousandths requiring either a heavy press or super-cooling the sleeve for installation. More agreement is now found in that the heavy interference fits have been eliminated. The best practice is to install sleeves with either a very slight interference or a slip fit. In connection with this, it is important that the cylinder sleeve be effectively sealed at the top to prevent passage of the high pressure combustion gases between the sleeve and the cylinder. The light push fits or the interference fits of .001 will give less cylinder distortion, resulting in better performance with respect to blowby and longer cylinder and ring life, than the high interference fits which had been used by some manufacturers.

The piston ring industry has made great strides during the past several years to develop oil rings with exceptional conformability for distorted and worn cylinders. The life of the ring and cylinder installation is directly proportional to the ability to meter a continuous but thin oil film to the compression rings under all operating conditions. It is the minute

but continuous oil film which permits the compression rings to seal. In our present-day commercial engines with their higher specific outputs it has become increasingly more difficult to provide that uniform but very thin oil film around the entire circumference of the cylinder with the single-piece conventional, stiff, cast iron oil control ring. As the power load goes up and cylinder distortion increases, oil rings had to be employed which are extremely flexible and conformable.

With extremely conformable rings much better oil control and life can be obtained in either distorted cylinders or badly worn cylinders than is possible with conventional types since the compression rings will be provided with a more uniform film of oil around the entire circumference. Unfortunately, we have not been able to solve the problem of providing an equally conformable compression ring which is necessary to further increase the life of our power section, especially in high output engines of which cylinder distortion is a problem.

Outside of employing narrower rings, the only improvement in compression rings made by the industry which has seen practically universal adoption by the manufacturers of heavy duty commercial engines is the employment of the chrome top ring. This ring must be made of an extremely high strength and durable material to eliminate fatigue breakage which is induced by the chrome plating action on regular ring irons. We

(TURN TO NEXT PAGE, PLEASE)

Report On SAE Annual Meeting

Continued from Page 57

have found that only high strength centrifugally cast, heat treated alloys will successfully provide the endurance life in extremely high output engines.

Chrome plated rings are universally recommended in rebuilding procedures except in badly worn cylinders where the extreme hardness of this material will effectively prevent seating and may cause premature failure by blowby. From an economical standpoint chrome plated rings are rarely justified in badly worn engines since the expected engine life would be too short in such engines to exploit the increased life of the chrome plated ring.

I wish to point out another recommended practice which has seen more and more use during the past several years in the maintenance of heavy-duty fleets. Although the piston skirt is subjected to less wear than the other two components of the power assembly it is essential that excessive clearance between cylinder and the piston be avoided when re-ringing an engine. Better ring life will be obtained in worn as well as new cylinders if relative motion between the piston and cylinder, especially cocking, is reduced to a minimum. It is recommended that pistons, which are in other ways serviceable from the groove wear standpoint, be resized to reduce the side clearance caused by both piston and cylinder wear. One of the best methods to resize heavy-duty pistons especially, is to knurl both sides of the skirt to provide at least original specification side clearance. The knurling method has an additional advantage in that it will produce an interrupted surface on the thrust bearing sides of the piston which will make it very resistant to scuffing. The pockets of lubricant retained by the knurling surface will prevent scuffing to such a degree that closer piston fits can be employed than are possible with new conventionally finished pistons. This is especially important in rebuilding procedures because it provides a wide margin of safety in regard to piston clearance. The desirability of this interrupted surface from the scuffing standpoint is so great that even original equipment pistons are manufac-

tured with such a surface where economic considerations permit it.

Messrs. Newton and Hoertz—

In a paper entitled "Considerations for Commercial Valve Maintenance," the authors outlined some common wear points in the valve train, suggesting methods for improving valve life through better choice of inserts, use of rotators and more care in adjustments. Two common wear points, they said, are the rocker arms and tappets, and when this occurs, proper adjustment is impossible. A depression in the tappet screw or in the rocker arm face will give erroneous tappet clearances. When such wear is found, the worn surfaces should be reground to provide for the proper feeler gage reading. In cases of extreme wear a replacement may be necessary.

Valve guide wear cannot be accurately measured with a plug gage, the authors stated. A more accurate device is the small hole gage. Both the tapers and the amount of oval can be easily taken from the guide and transferred to a standard micrometer. Direct-reading dial gages also are reliable instruments for this work.

Guide wear should be taken seriously because it affects the overall valve temperature. As the guide clearance increases, temperature rises. The higher clearance also allows movement of the valve on the valve seat insert, causing wear and gas leakage, factors that contribute to valve burning, loss of compression and power.

In commenting on the valve springs the authors suggested five points to be observed in service. 1. Wear on the block which comes from high-speed operations, 2. Wear on the valve caps, 3. Wear on the spring ends, 4. The spring tension which accounts for pressure loss over long periods of time, and 5. The pressure loss itself, caused by the lowering of the valve on the seat caused by grind-in.

Grind-in causes longer spring operating height and lower operating spring loads. When the seat is lowered as much as 1/16 in. or more, it is desirable to re-establish the correct spring operating height by the installation of a space washer—or use of new valve seat inserts.

The authors suggested that seats with as great a depth as possible be used. Deeper seats stay tighter and perform longer. Hard-faced seats have an endurance life of four to five times that of hard iron, and their increased cost is justified. Factors affecting valve seat insert life are the unevenness of the water jacket area caused by scale formations, the positions of the exhaust port in relation to the insert as well as the installation techniques. All have the effect of shifting the seating surface under operating conditions. Accurate grinding of the seat for concentricity to the guide inside diameter was emphasized.

Sodium-cooled valves as well as valve rotators were recommended by the speaker for longer valve life. Premium valves, available for replacement purposes, also may be an answer to problem engines. The authors went on to show the importance of accurate valve lash adjustment in long valve life. Insufficient operating clearances, whether due to improper lash or lax engine maintenance condition, reduces valve life to as little as 25 per cent of normal, it was said. Excessive clearance of course, causes broken valves, due to increased seating velocity.

Mr. Thill—

According to Mr. Thill, the following factors should be considered in the installation of engine bearings:

1. Is the housing (connecting rod or main bearing saddle) into which the bearing is being assembled round, reasonably smooth, straight, and of proper size?

2. Is the new insert bearing to the correct physical requirements; that is, similar grooving and oil holes, proper materials, and correct under-size for the replacement?

3. Is the shaft round, smooth, straight and of correct size?

4. Is the oil clearance correct?

5. Will good, clean oil be supplied to the bearings under pressure?

Methods of checking bore out-of-roundness after assembly in the field vary—from the use of inside micrometers and out-of-roundness gages to air gages. A salvage hint on rod or main bearing saddle out-of-roundness has been placed at .002. Naturally, one cannot expect optimum performance under this condition. We would place .0005 maximum out-of-roundness as permissible.

(TURN TO PAGE 125, PLEASE)

Convex Mirrors Improve View

Wider range of rear view, reduction of headlight glare, safety in turning, backing and maneuvering is achieved with fender-mounted convex mirrors supplementing plane units

By J. Willard Lord

Safety and Fire Prevention Div.
The Atlantic Refining Co.

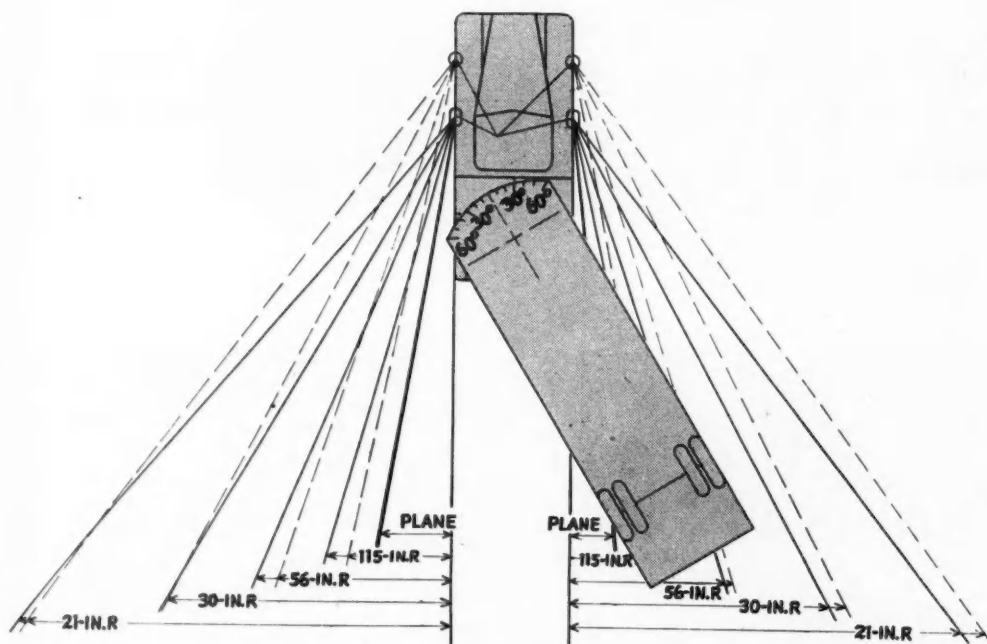


Diagram at left demonstrates increased field of vision made possible by convex mirrors. Area on each side of vehicle marked "plane" indicates field of vision with standard flat mirror mounted at cowl. Other lines show field of vision with convex mirrors of various radii indicated. Note that with trailer turned to 30 deg., 30 in. radius mirror still "sees" beyond it. Dotted lines show field of vision for similar mirrors on front fenders

HOW many times have you heard a driver reporting on an accident say: "I looked in my mirror and saw nothing; so I started to turn left and . . . crash!"? The truth is that all too often mirrors fail to tell what is really behind the vehicle. This is especially true of the tractor-trailer combination, where any swing of the trailer, particularly in close-quarter backing operations, completely obliterates the field of vision offered by the ordinary flat mirror. The answer comes in the form of convex mirrors which are mounted on the front fender to supplement the regular large

type plane cab mirrors. A wider range of rear view, reduction of headlight glare as well as improved safety in turning, backing and maneuvering truck-trailer combinations is possible with four mirrors of these types arranged as shown in the drawing.

The driver wants and needs a large plane mirror on the left cab pillar so as to give him the best of undistorted vision to the rear. He needs a vertical field such that it will take in the trailer wheel as well as the road to the rear. It is this matter of a bigger vertical field of vision which has led to mirrors 8½ or 9 in. high, for these

have a vertical field 7 to 8 ft high measured at the rear of the typical tractor trailer.

But this cab mirror should be supplemented by a convex fender mirror which because of its field of vision (about five times as wide as a plane mirror) is useful in warning the driver of traffic to the rear not to be seen in a plane mirror, particularly when turning or maneuvering.

Similar equipment on the right side provides the driver of a large tractor with adequate equipment for operating on multiple lane highways.

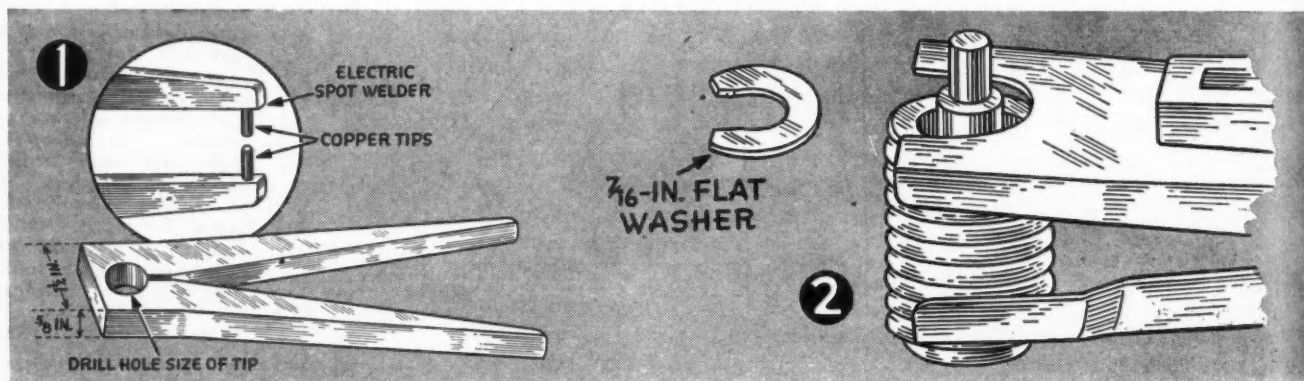
(TURN TO PAGE 101, PLEASE)

SHOP HINTS

FROM FLEET SHOPS

\$25 FOR THE BEST HINT
PUBLISHED EACH MONTH

\$10 FOR ALL HINTS
PUBLISHED EACH MONTH



1. Spot Welder Tool

by Frank P. Coulomb
Inglewood, Cal.

Here is a tool that might interest the welder. When the copper tips are removed from the spot welder, sometimes pliers are used and this damaged the shanks. This simple tool will remove them easily and with no damage.

As illustrated the tool is made from a piece of $\frac{5}{8}$ -in. stock $1\frac{1}{2}$ wide and approximately 14 in. long. Handles are cut out and a $\frac{3}{16}$ -in. hole is

drilled into the head. There is sufficient spring in the handle to permit the head to be placed over the welding tip and clamped tightly while it is being removed.

2. Ford Valve Lifter

By R. M. Shelton
Safety Convoy Co.
Dallas, Tex.

The regular Ford valve lifter will not fit the collars on the Ford six intake valve stems, and permits the split locks to jump out. Here's a way

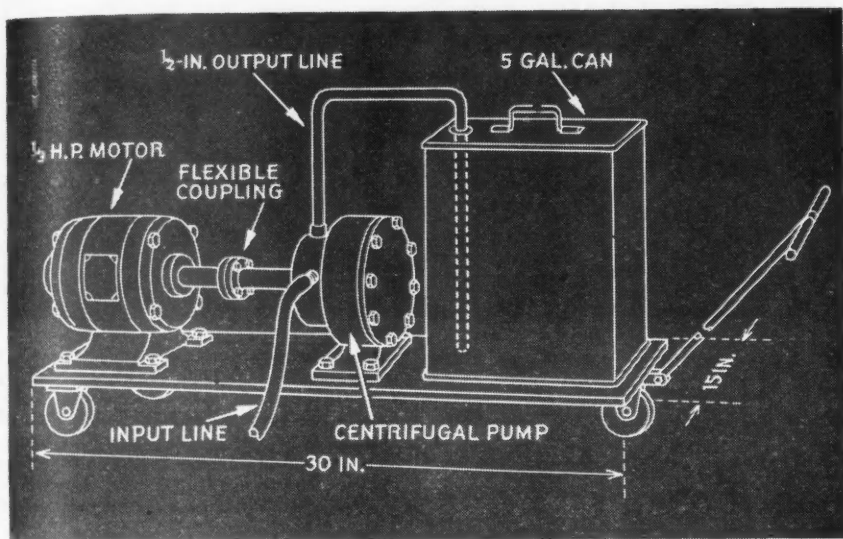
of salvaging this tool for work on the six. Split and straighten a $\frac{7}{16}$ -in. flat washer as shown and place it in the collar, and you can use the lifter for either engine.

3. Electrical Work Phones

by G. E. Upperman
Continental Baking Co.
Wheeling, W. Va.

Telephone headphones made up in the manner illustrated can be used for many types of tests around the vehicle and will show up the troubles

HINT OF **\$25** THE MONTH



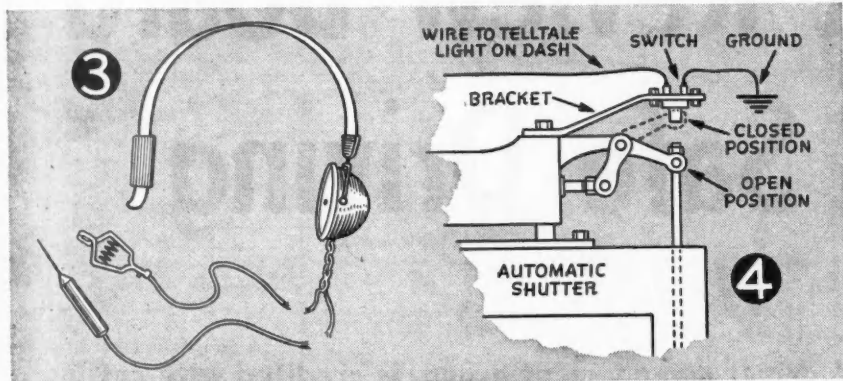
Engine Flusher

by J. H. Greif
Haas, Baruch & Co.
Los Angeles, Cal.

In our fleet we have 15 fork lift trucks. Whenever a major job is necessary on any of these lifts the hydraulic supply tank must be drained and all fluid lines must be broken. Formerly this resulted in oil pouring all over the floor. Here is a unit I made up to speed up this job and to save the fluid for reuse.

This portable stand consists of an army surplus centrifugal pump with a capacity of $3\frac{1}{2}$ gal per min, a 1/3-hp motor, a 5-gal receiver can, and a base supported on casters. The stand is hooked up as shown.

We use this same equipment as an engine flusher. To use in this manner it is necessary to connect the input hose to a crankcase drain plug modified to receive a $\frac{5}{8}$ -in. copper tube. The output line is inserted into the oil filler pipe and 2 gal of motor flushing oil are circulated through the engine for 10 or 15 min. We have pulled oil pans after this procedure and found the inside of the engine exceptionally clean.



with a low margin of error. For example, defective fuses or hot wires can be found without the danger of sparks.

4. Radiator Shutter Signal

by Edward E. Young
The Short Line, Inc., of Penn
West Chester, Pa.

We have had trouble with automatic shutters sticking so I made a signal light to show when trouble occurs. I made a bracket to hold a door-

type switch and mounted it on the shutter cylinder in such a position that the shutter bar contacts the switch and turns on a tell-tale light on the dash when the shutters are closed. When they open, the light goes off. This arrangement is also good for testing the thermostat.

5. Tool Handle Tip

by Harry Miller
Philadelphia, Pa.

Loose wood files and other tool handles are difficult to fasten since

ordinary wood glues contract upon hardening and the handles work loose again.

Mix up a little glycerin and litharge into a stiff putty, work it well into the hole in the handle, drive in the tang of the tool and wipe off the excess, for the paste will set quickly. Since this mixture expands upon drying, the handle will stay tight.

6. Wire Brush Care

by Howard Sampson
Grocers Baking Co.
Louisville, Ky.

The motor-driven wire brush is one of the most neglected of shop tools. Brush life can be doubled by simply reversing the wheel after the wires develop a slight angularity.



By George E. Davis
Director of Safety and Personnel
Lasham Cartage Co., Chicago



Lasham's accident review board at work. Seated, left to right, L. Kratky, superintendent of operations; W. Crotty, driver; A. Miller, driver; G. E. Davis, safety director; W. S. Gibson, manager; F. L. Monaco, superintendent of maintenance; P. Martin, driver; C. Slomski, driver and union steward

Accident Review Board Spurs Safe Driving

Weekly panel, composed of driver-management group, is credited with cutting accidents and encouraging truck improvements for driver safety and comfort

LASHAM'S Accident Review Board, which has been in process of development for about five years, is considered an important part of the company's program to train and supervise drivers. In addition, its activities have been instrumental in reducing our accident rate, a brief resume of which is shown below. The month January, a tough one, has been used for the comparison.

January	Accident Rate per Power-Hours
1946	1705
1947	1902
1948	1945
1949	1941
1950	1971

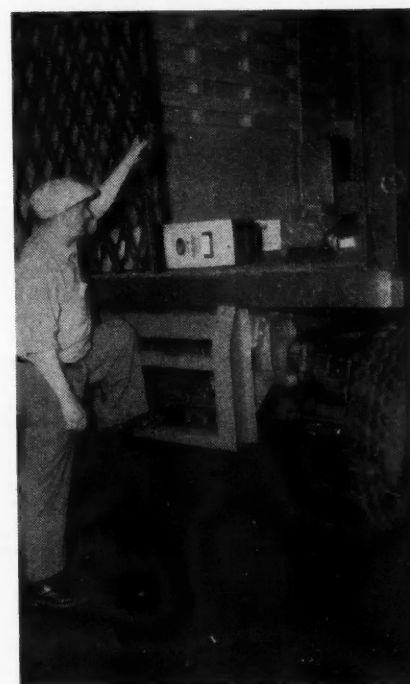
As this is written, our records for 1951 are complete for the first seven months. Using these data for comparison with the same period of 1950,

the record shows that we had one accident every 1871 power-hours in 1950, and one accident every 1946 power-hours in 1951.

The percentage of chargeable versus non-chargeable accidents also has declined. Using full-year comparisons, we had 60 per cent chargeable against our drivers in 1949 and but 58 per cent in 1950. Prospects for 1951 look even better at this date.



Partial view of drivers' room and dispatcher's office. Reading the latest safety and other driver notices are C. Slomski and W. Crotty. In the rear are, left to right, A. Pope, T. Evans, and G. Walston. Drivers' room, at left, is cheerful and attractive, an important factor in maintaining good relationship



Shown above is another mechanical improvement designed to reduce accidents. This is a shop-made, combination rear step and bumper. Inexpensive and easily made, it is very popular with the drivers. Shop drawing is shown below complete with sizes, etc.

UNIVERSAL CASTING COMPANY RELIABLE TRUCKING COMPANY STANDARD CASTING COMPANY BENTLEY TRUCKING COMPANY LASHAM CASTING COMPANY						
Form For C-20,92						
STATION: LASHAM - CHICAGO						
RECORD OF AUTOMOBILE ACCIDENTS OCCURRING DURING THE WEEK ENDING: Saturday 10-7 1950						
DATE OF ACC.	DRIVERS NAME	UNIT NO.	BRIEF DESCRIPTION OF THE ACCIDENT	CHARGEABLE OR NON-CHARGEABLE	To Our Unit (Others)	SPECIFY ANY BODILY INJURY OR DEATH
10/7	J. Verdome	813	Struck car crossing intersection	C		\$15.00
10/7	G. Olsen	765	Sideways fender of parked car	C		\$10.00
10/7	P. Salent	729	Struck rear of car ahead	C		\$50.00
10/6	A. Halverson	1129	Damaged fender of truck	C		\$20.00

Participants at Review Board Meetings

V. Jersabowski	Driver	A. Rabout Sr.	Steward-Driver
V. Thorell	Driver	V. S. Olson	Manager
S. Jarvis	Driver	G. S. Davis	Supt. of Safety
L. Kratky	Supt. of Operation	F. C. Monson	Supt. of Maintenance

The accident review board was held on October 5th, 1950 with the above men present.

The first accident reviewed involved driver J. Verdome on October 2nd in which Mr. Verdome struck another car which was crossing an intersection in front of him. It was pointed out to the members of the review board that from the statement made by Verdome he had ample time in which to bring his truck under control and prevent striking the car which had crossed the intersection in front of him. This was an opportunity to point out to the drivers sitting in on the review board the importance of defensive driving as it shows that not Mr. Verdome approached the intersection with more care it was unlikely that the accident would have occurred. Therefore, in view of the facts the review board found the accident chargeable to the driver Verdome inasmuch as he had not exercised proper precaution when approaching the intersection.

The accident of October 2nd involving driver George Olsen was found chargeable as he had failed to allow sufficient clearance when passing a parked car. However as this was an unusual accident for driver Olsen to be involved in as his record indicated he generally uses proper distance judgment in close spots, he was cautioned thoroughly regarding this accident and he could not understand himself why he was charged the fear of this parked car. He thought that it was just one of those times when he took too much for granted.

The accident of 10/5 involving P. Salent and A. Halverson will be reviewed at the next meeting.

G. S. Davis
Director of Safety & Personnel

Above is a typical report of weekly accidents, which are reviewed by the driver-management group. Final disposition recorded on the reverse side. Accident discussions have led to mechanical improvements, as this modern seat, upper right

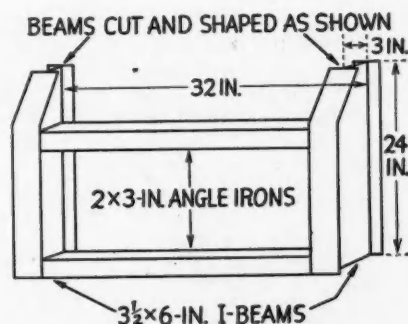
The Board holds brief meetings regularly each week. With this weekly schedule, our review Board promptly investigates each new accident so the full facts will be available for review. A different panel of driver "jurors" for each session judges whether the accident is chargeable.

The decision of the jurors is considered before any direct action is taken.

Two-fold Objective
FOR these accident review sessions we assume two chief objectives as outlined below:

First, promote among our drivers more careful observance of the common practices of defensive driving.

Second, stimulate in our drivers an increasing professional pride in safe driving, and thus help to achieve
(TURN TO PAGE 114, PLEASE)



Power Steering is on the Way

Six manufacturers provide hydraulic boosters adaptable to any chassis, to improve

WITH the introduction of power steering on some of the newest passenger cars, truck makers and truck operators alike are re-evaluating the benefits of booster assist units to see if the additional costs will justify its use on commercial vehicles. Power steering appears to offer the following advantages:

1. Improved stability in over the road operation at high-speeds.
2. Better control of vehicle over rough roads and highly crowned highways.
3. Improved maneuverability in parking and in congested areas.
4. Driver comfort and improved driver morale with less driving fatigue.
5. Better control of vehicle in case of accident from blowouts, side-swipes, etc.

Power steering is not new. Assist units have been used for years on heavy-duty off-highway equipment

and in some buses. Saginaw, Ross, Vickers, Gemmer and Garrison have made continuous advances in designs and application with the experience gained in these fields. Today, boosters can be mounted on nearly any type or size vehicle with few changes and with little addition of weight.

Trend today has been toward the use of hydraulic pressure to take the place of the driver's efforts in turning the wheels. Air-operated units, however, are available. Both Saginaw and Ross use the Bendix hydraulic mechanism, while others use operating principles similar in many respects.

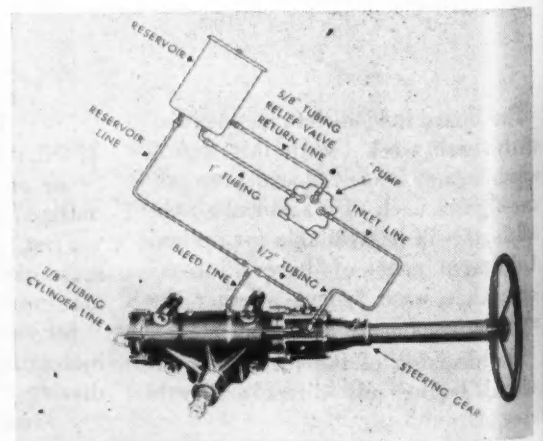
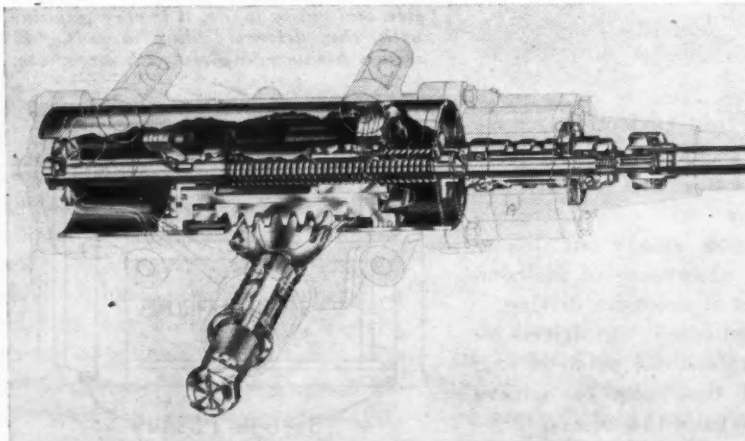
All systems use a positive displacement pump of the gear or vane type to circulate oil through the system constantly at a pre-determined pressure. Valves connected to the steering gear—or built into it, permit the oil to flow with movement of the wheel to act on a piston which oper-

ates the steering system draglink.

With the wheel held in a stationary position, the oil flow is bypassed through a neutral passage and returns to the pump without action on the piston, and as soon as any movement in either direction is made with the wheel, the oil flow is directed toward the proper piston (for either right or left turn) in quantity determined by the amount of movement of the wheel. Since the system is pressurized, the action of the valves is immediate and the steering mechanism is extremely sensitive to any movement of the wheel.

All systems use a mechanical connection between the steering gear and the wheels so that in event of failure of the power system, control of the vehicle is still possible. Pressure in the system takes up for road shocks and provides for a high degree of stability at all speeds. The system is designed so that the wheels can be

Fig. 5. Bendix incorporates worm and nut type gear with hydraulic power cylinder and control valve, easily adapted to any chassis. Fig. 6. Schematic arrangement of units and piping connections is shown below



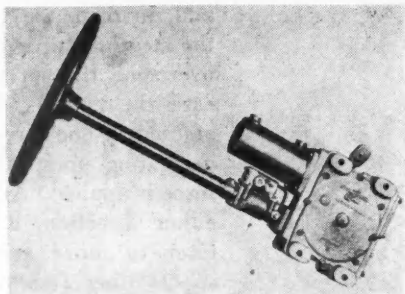
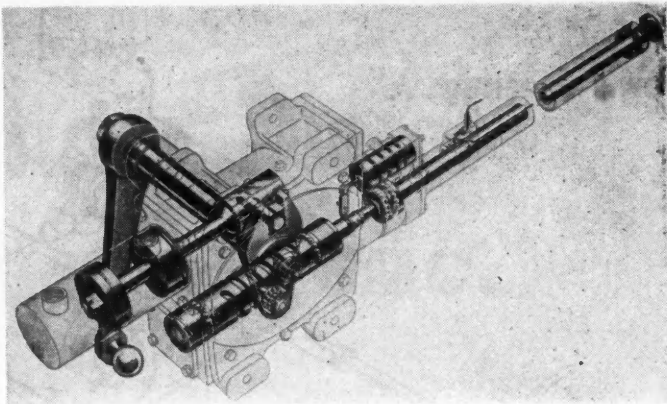


Fig. 1. ABOVE. The Ross assembled gear. RIGHT, Fig. 2. Phantom view of unit, showing operation of power cylinder and control valve



safety, maneuverability

turned at a standstill with only an effort required on the driver's part to open the valve with the wheel.

Original criticism of power steering units on the fact that they were not sensitive to "feel" has been largely overcome with present day designs. All units provide for hydraulic reaction to assist self-righting characteristics, excellent recovery on turns and operate equally well under high speed or low speed conditions. Most authorities agree that power steering improves driving safety under emergency conditions as well as under high speed operation. Weight is not appreciably increased due to the fact that modern designs are compact, simple in construction and make the best possible use of pressure.

Maintenance is no problem—if adjustments are properly made and the oil is kept clean. Other than a take up of ball joints to compensate for

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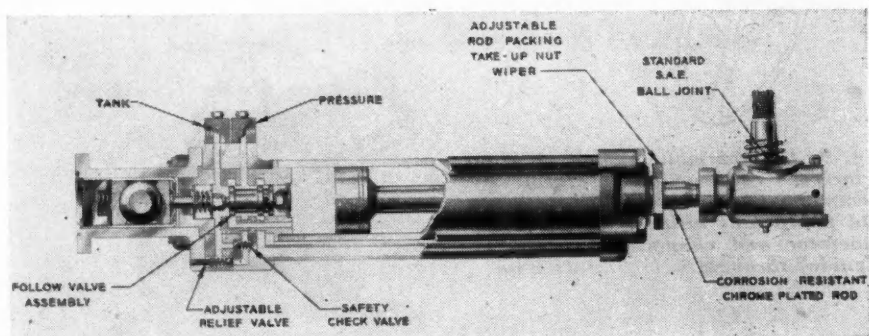


Fig. 3. Schematic view of Vickers booster. Valve is integral with power cylinder

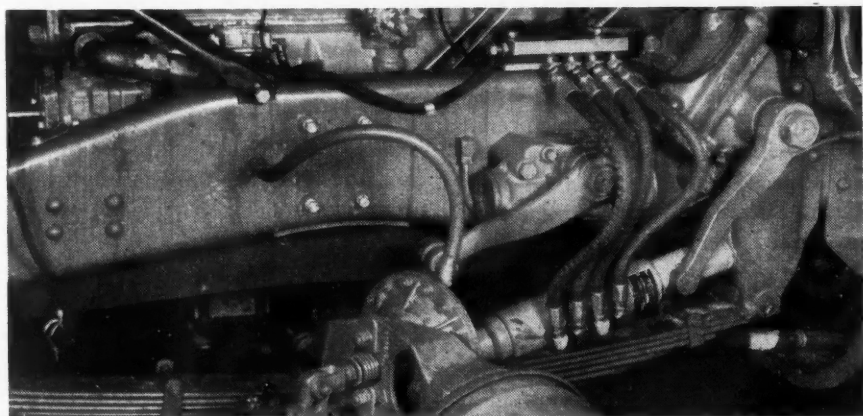
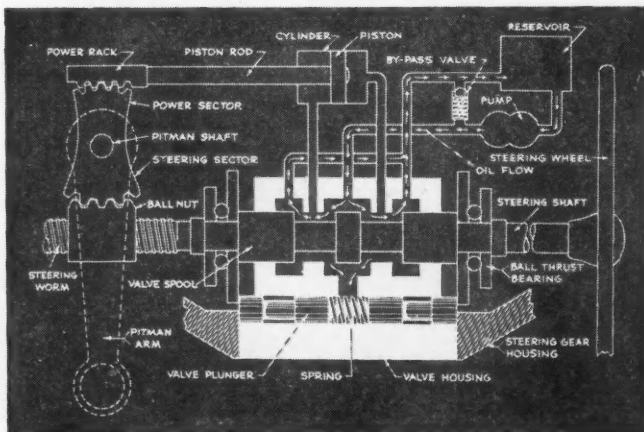
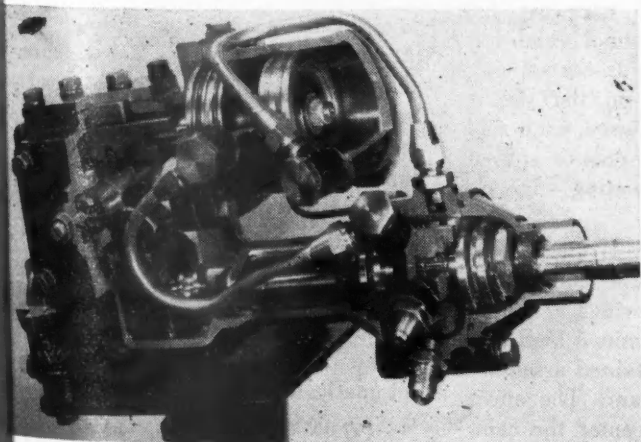


Fig. 4. Garrison gear installed, showing drag link valves and connecting lines

Fig. 7. Schematic outline of Saginaw system showing power-actuated rack and one of the valve plunger and spring sets. BELOW RIGHT: Fig. 8. Cut-away gear assembly with piston and power rack shown at top



Power Steering . . .

Continued from Page 65

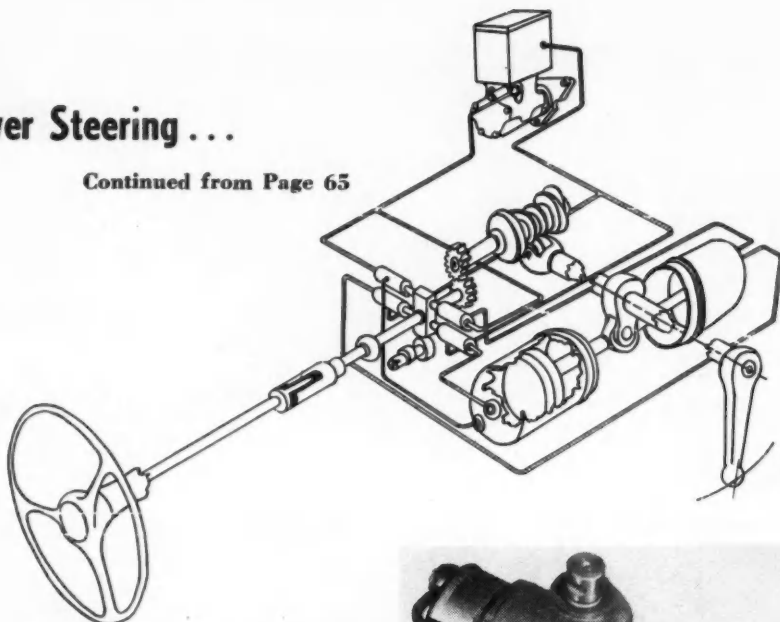
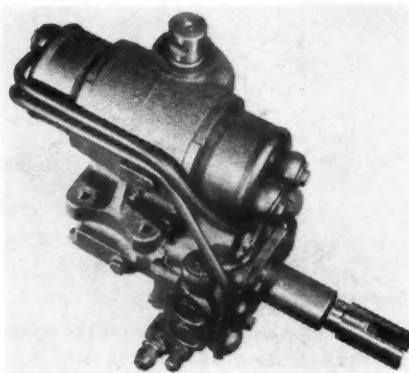


Fig. 9. Diagrammatic sketch showing principal construction features of Gemmer system. RIGHT. Oil reservoir and pump unit which is mounted on generator and connected to "Hydra-guide" through high pressure hose



wear. There is very little maintenance required. Manufacturers provide manuals to show each adjustment and recommendations for proper grades of oil. Oil changes should be made with the seasons as recommended by individual manufacturers. Oil reserve and supply tanks should be dust-proof and fitted with suitable filters. Filters should be removed and cleaned every thirty days.

Ross

THE ROSS Hydrapower steering gear is of the widely used Ross cam and lever type, to which has been added a hydraulic power system. The mechanism to transmit hydraulic power to the steering gear consists of a hydraulic pump, reservoir, control valve, and power cylinder. The hydraulic power is applied to the cross shaft through an extension of the lever, which contacts a sliding member connected to the piston of the power cylinder. The flow of oil to the cylinder is directed by the control valve. The steering gear with power cylinder and control valve is shown in Figs. 1 & 2. The oil itself is supplied by an external pump which is driven by the engine.

The action of this steering gear is both manual and hydraulic in effect. When the cam is turned to the left or right by the driver's effort on the steering wheel, the stud of the lever

is moved through the groove of the cam, thus rotating the levershaft and providing angular movement of the steering arm; however, whenever the driver's effort at the steering wheel exceeds the pre-load of the cam centering springs, the hydraulic system comes into operation automatically and relieves the driver of excessive loads.

The valve housing has several internal oil channels through which the oil flows. The housing is fitted with a sleeve which has accurately located openings corresponding to the channels in the housing. Likewise, the sleeve is fitted with a spool which has accurately located lands corresponding to the openings in the sleeve. When the valve is centered, each side of each land on the spool is spaced equi-distant from a mating edge on the valve sleeve.

The spool is held in the center position by means of the cam centering springs. These springs are compressed to a pre-determined load and installed as a self-contained assembly at each end of the cam. The effect of the springs is to center the cam,

and, in turn, the valve spool, unless the steering force is great enough to overcome the spring load, in which case the cam is displaced a slight amount in one direction or the other, depending upon which direction the force is applied. As the cam moves in either direction, it causes the valve lever to move and shift the valve spool, thus restricting one of the return passages to the outlet port and causing an immediate pressure increase in one side of the cylinder. At the same time, the opposite return passage has been enlarged, allowing the fluid from the discharging side of the cylinder free passage to the outlet port. The effect of the increased pressure in the one side of the cylinder is a force acting on the piston and in turn on the inner lever of the gear. Full pressure is obtained with a cam travel of only a few thousandths of an inch. The slightest movement results in a pressure differential. Whenever the effort at the steering wheel is released, the cam and valve spool are returned to the center position.

If the steered wheels are subjected to a shock load, the pitman arm, acting through the inner arm of the gear, shifts the cam and control valve in the appropriate direction to direct the fluid to the proper side of the piston to resist any movement due to the shock. This blocking action of the gear prevents kickbacks at the steering wheel. Because the preload of the spring unit can be varied, the amount of manual effort exerted before the hydraulic boost is effective can also be varied.

Vickers

THE VICKERS Hydraulic Steering Booster as shown in Fig. 3, utilizes hydraulic pressure from the engine driven pump. Movement of the steering wheel is transmitted through the pitman arm ball stud which in turn actuates a control valve in the steering booster. This control valve directs the hydraulic oil to the booster cylinder, producing a linear movement of the cylinder and attached drag link. Steering action whether continuous or otherwise, instantly produces a corresponding movement of the drag link. The force applied to the drag link by the booster is automatically the amount of thrust

(TURN TO PAGE 155, PLEASE)

Three Cylinder Diesel

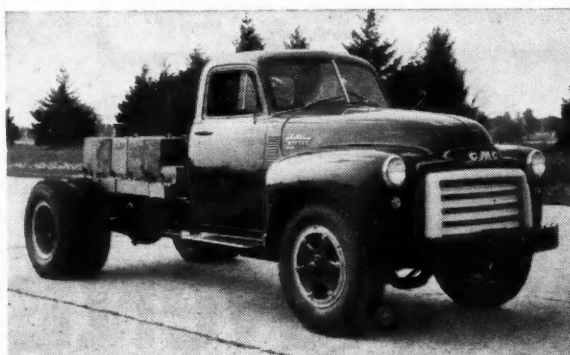
Powers Medium Weight GMC's

VINCIDENT to the introduction of its series D450-37 light weight diesel truck and tractor models, GMC Truck & Coach Div., GMC, has announced adoption of the GM 3-71 two-cycle diesel engine which will power this line. It is said to be the first time that diesel power has been offered as standard equipment in GMC vehicles of the medium-weight hauling class in the range of 19,500 GVW to 35,000 GCW ratings.

Basic specifications of the three-cylinder, two-cycle, valve-in-head 3-71 engine are as follows: Bore—4 $\frac{1}{4}$ in.; stroke—5 in.; displacement—212.3 cu in.; Bhp (max.)—110 @ 2100 rpm; maximum torque rating—282 lb ft @ 1700 rpm.

In the latest version of this engine, unique features of design, maintenance, performance, and interchangeability of parts among all GM "71" engines, are similar to the description of the 4-71 and 6-71 diesel engines announced earlier (see CCJ, September, 1951).

Two-cycle 110 hp engine offered as standard equipment in 19,500 to 35,000 lb GVW class



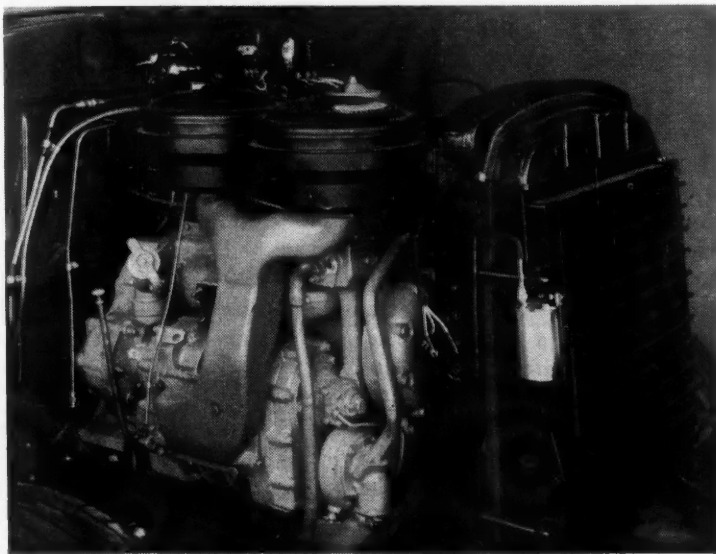
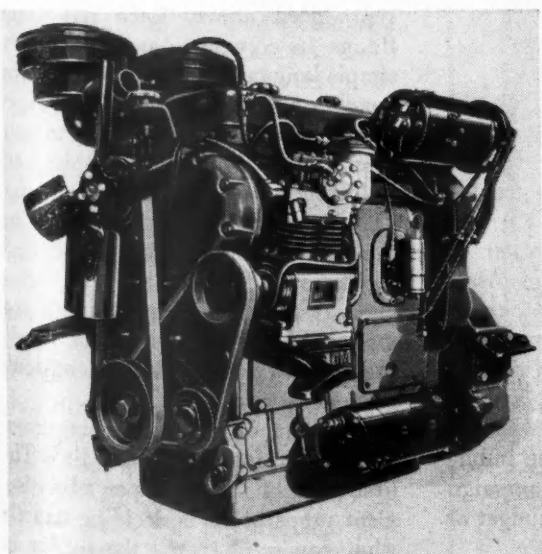
The steering gear is of recirculating ball type. The electrical system is of 12-volt type with a generator of 50-amp capacity.

The brake system combines air actuation with the advantages of dual-

cylinder hydraulic brakes at the front and rear. Heart of the system is an air-hydraulic unit that changes air pressure into hydraulic pressure by means of two direct connected pis-

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BELOW. Left hand view of engine, showing generator, starter, air compressor location. **BELOW RIGHT.** Right hand view, showing blower, manifold, water pump. **ABOVE.** The D450-37 light weight truck



HOSPITAL BEDS ARE NO PLACE TO SPEND A SUMMER VACATION

Hospitals are grand institutions—when you need them—but they're hardly the spot to recommend for your summer vacation.

This is the vacation season—the time when Nature beckons with a flirtatious eye to get outdoors—to the seashore—the mountains—or the deep woods.

Take time to be safe—when you drive out on your vacation—remember there's always another day to get there—respect the rules of the road.

Just now the General Assembly is considering some new safety laws—and right thinking citizens will approve the effort to make the highways safer.

But in the final analysis—safety is a personal matter—something that you can do for yourself most of the time. Don't turn a joyous time into a time of tragedy.

Hospital beds are no place to spend a summer vacation.

The Busy Merchant wants his goods promptly. He ships by truck.

P. M. T. A.

PENNSYLVANIA MOTOR TRUCK ASSOCIATION,
Lawrence County Chapter.

THE PENALTIES ARE ROUGH, BUT THE BILL IS SOUND

Under the provisions of the Robinson-Dent Bill, now before the House of Representatives, the truck overloader will find himself in trouble

Forty dollars per ton for overloads, with other penalties included. The bill also provides higher license fees for trucks. But intelligent truck operators know the bill is sound.

It adjusts weights in Pennsylvania to meet adjoining states. It gives the honest truck operator a chance to survive.

It is a sound bill. Justice to a great industry should mean its passage.

SHIP BY TRUCK!

You get your merchandise when you want it.

P. M. T. A.

PENNSYLVANIA MOTOR TRUCK ASSOCIATION,
Lawrence County Chapter.

Local Advertisements Tell

Publicity plan of association's county chapter appeals to community spirit, interests; develops good will, prestige and official recognition

By Lester M. Auchmoody

Assistant Editor, Commercial Car Journal

THE NEED FOR a well-planned, consistent program of public relations in the trucking industry has been felt for many years. While the larger associations may represent the industry as a whole, to plan extensive campaigns on a national scale, the local chapters are by no means left out of the picture.

As a matter of fact, small groups of interested fleet men in small cities frequently have the edge on the big fellows. They have a valuable opportunity to cement friendly relations

with local editors and the public in general, something seldom granted their contemporaries in the big city.

The Lawrence County chapter of the Pennsylvania Motor Truck Association has proved that this can be done. They have a continuous newspaper advertising campaign in the New Castle (Penna.) *News*, a daily paper of 16,000 circulation, which is carefully planned to keep the public truck conscious. The entire campaign is handled on an operating budget of \$1500.

Preparing the Campaign

NEWSPAPER advertising and publicity is only one part of this public relations program, but the methods used in its planning may well be of interest to similar groups throughout the country.

Consider the typical advertisements reproduced above. Each has some things in common; a simple story, simple language, a clearly-understood headline. These ads are typical of others, planned and classified to represent timely, interesting topics, yet following a deeper, planned meaning. They embrace topics like safety on the highway, information about truck legislation, community activities, civic responsibility, and direct promotion of the part which the trucking industry plays in the nation's economy.

The plan of any advertising campaign could follow a similar line. The first thought in newspaper advertisement preparation is deciding exactly what you want to tell the reader in

X If You Don't Vote Tuesday, Don't Complain Wednesday X

Tuesday, July 24 is an important day in all our lives. It is Primary Day, the day we name the candidates who will represent the two political parties in the November election.

If you don't "XERCISE YOUR X" on Tuesday, you have no reason to exercise your lungs in complaint on Wednesday. Only by the votes of all the people can we get representative government.

Whether you are a Republican or a Democrat is not important. It is important that you vote. Don't let anybody tell you how to vote, but vote.

P. M. T. A.

X Pennsylvania Motor Truck Association Lawrence County Chapter X

BACK IN SERVICE AGAIN KEEPING THINGS ROLLING

On your week end trip or your vacation trip you have noticed a lot of trucks upon the highway. Perhaps you were held up a few moments on a long hill because a truck ahead was moving slowly.

There's a reason for the motor trucks on the highways these days. Once again America is calling for weapons, for munition, for vehicles, for planes and tanks and other equipment.

And America can't wait for slow transportation. The furnaces are yawning for steel, the lathes are crying for product, the government is calling for finished materials.

That's why the trucks are bending every effort to get the stuff over the road. Trucks are back in service again, keeping things rolling.

SHIP BY TRUCK!
The Smart
Shipper Does!

P. M. T. A.

PENNSYLVANIA MOTOR TRUCK ASSOCIATION
Lawrence County Chapter.

Trucking Story

the amount of space you have available.

The Safety Approach

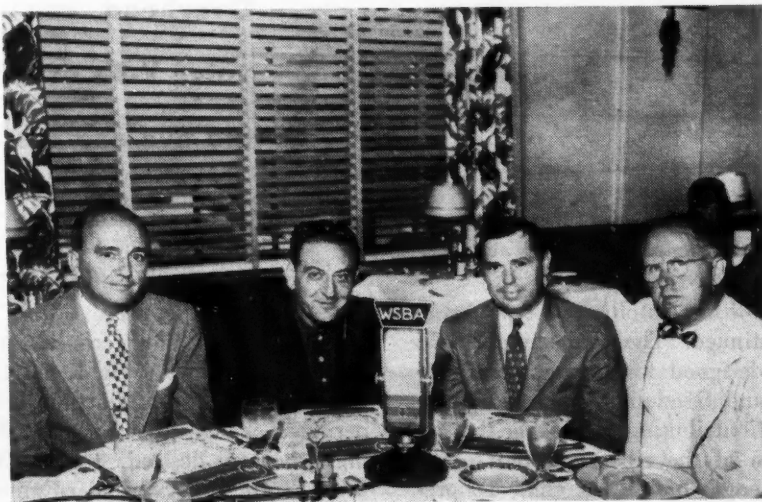
ONE point of attack, along the line of highway safety, is an acceptable and timely subject even to the most careful driver. Nobody deliberately wants an accident to happen.

One reproduced advertisement reads, "The Hospital Is No Place To Spend A Vacation." The story or "copy" makes an appeal to motorists to take it easy, to stay alive. The committee went further along the safety theme and worked out another timely headline.

It read: "The Fourth of July was the Last of August," and told the whimsical story of one "August Hobelspatcher" who was doing 94 on a straight stretch when a tire blew out. The story had a good safety punch, but a better punch for truck relations. Directed at the truck operator and written in the language of a

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Another Chapter Scores with Sweetest Music

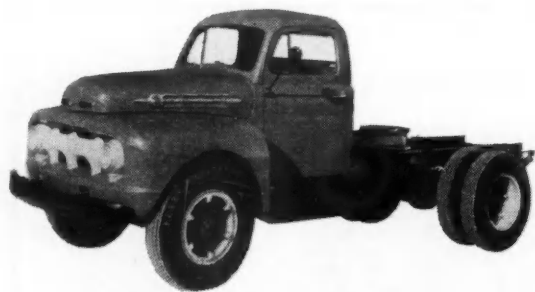


Band leader Guy Lombardo meets with the sponsors of a radio show his band will be doing over WSBA, York, Penna. The sponsors have marked up another victory for public relations in the trucking industry for they represent the York County Chapter of the Pennsylvania Motor Truck Association. From left to right are: Elwood R. Good, vice president; Guy Lombardo; Woodward W. Waltemyer, president and Benjamin H. Throop, director. The local unit sponsors a network show.

Three New Engines

▼ **THREE** new engines will power the 1952 line of Ford trucks. Of five engines offered this year, three, the overhead valve six developing 101 hp, and two big overhead valve V-8's of 145 and 155 hp respectively, are revolutionary departures from the former line. The basic 317 cu in. engine which will be used in the Cargo King was described in January, page 66.

The new Ford overhead valve six is an inline engine of 215.3 cu in. displacement developing 101 Bhp at 3500 rpm. Featuring a high turbulence type combustion chamber with a 7 to 1 compression ratio, this engine incorporates larger diameter valves for improved breathing, valve rotators on all valves and cast-in-block guides for the valve stems. Ford has aimed at the development of "me-



chanical" octanes in the design. As a result the engine will operate satisfactorily on regular fuels.

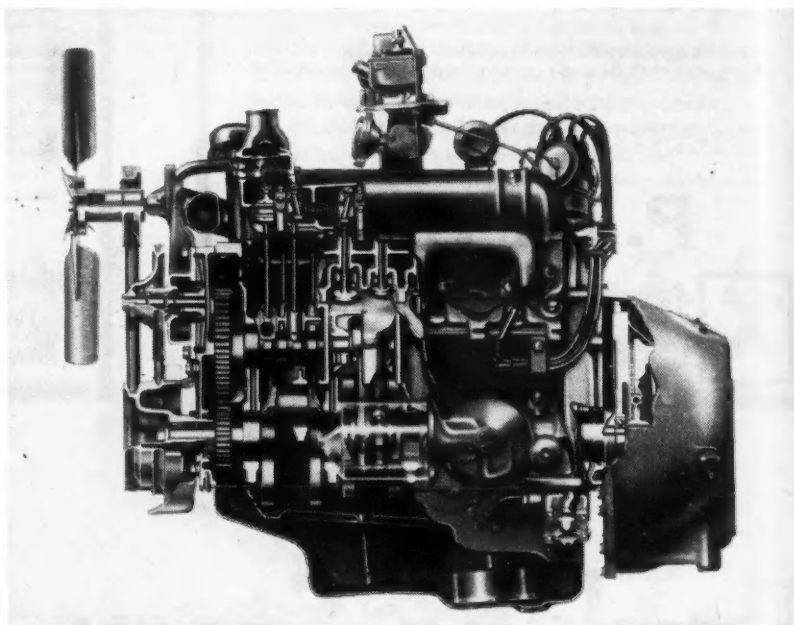
Use of the Autothermic type piston is continued. The connecting rod is new, designed for strength and rigidity and freedom from fatigue failure. Contributing to this is the extension of the ribs right out to the outer edges of the big end. To preserve the strength of the section at the bolts, the forging is counterbored eccentrically about the bolt hole so as to remove the minimum of metal. Connecting rod bolts, in turn, have a special formed head which fits into this recess and is consequently self-locking.

The four-bearing crankshaft is short and extremely rigid and is of cast alloy. It is so proportioned as to permit a change to seven main bearings whenever desired. The engine is fitted with the Schwitzer-Cummins vibration damper. A factory-installed, full flow oil filter is mounted horizontally on the lower right hand side of the crankcase.

The distributor drive also has been improved by positive drive directly from the camshaft. The oil pump is driven by an extension below the dis-

tributor gear, through two sets of Oldham couplings. Full pressure lubrication is provided to all bearings, with metered supply to the rocker arm bearings, and metered flow to the timing chain. In addition, connecting rods are provided with oil supply holes which assist in lubricating the cylinder barrel.

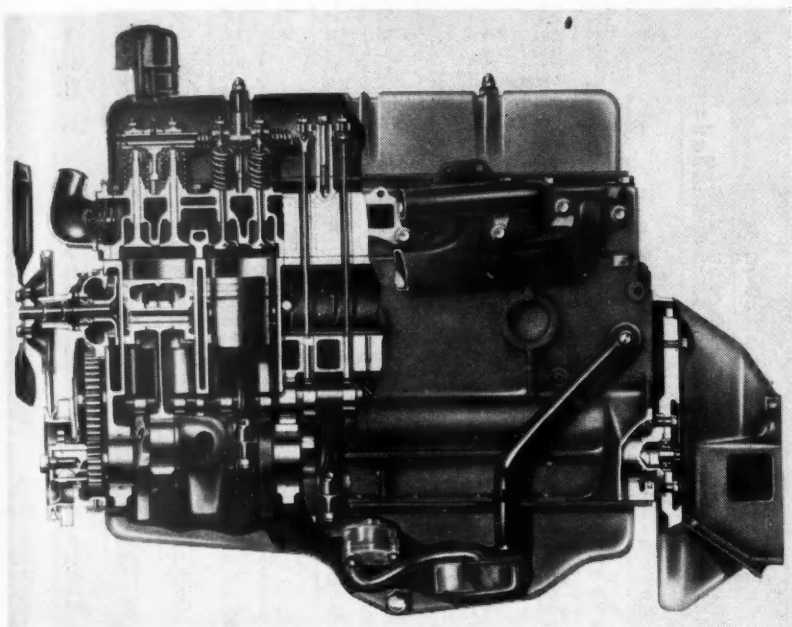
A silent timing chain drive replaces the former gear drive. In addition, the water pump is mounted as an integral part of the block. The intake manifold is of four-port construction,



LEFT. The F-7 "Big Job" powered by the Cargo King 145 hp V-8. ABOVE. Cut-away view of left hand side of the 155 hp engine used in the F-8

Overhead valve six of 101 hp; two overhead valve V-8's of 145 and 155 hp ratings are three of the five engines available in Ford trucks for 1952

Announced by Ford



ABOVE. Cost Clipper Six truck engine, developing 101 hp at a 7 to 1 compression ratio. Note valve construction, timing chain drive, new rods

Condensed Specifications

Model	Cost Clipper Six	Ford V-8	Big Six	Cargo King V-8	Cargo King V-8
Type.....	OHV	L-head	L-head	OHV	OHV
Bore.....	3.56	3 ³ / ₁₆	3.5	3.56	3.8
Stroke (in.).....	3.6	3 ³ / ₄	4.4	3.5	3.5
Displacement (cu in.).....	215.3	239	254	279	317
Compression Ratio.....	7 to 1	8.8 to 1	8.8 to 1	7 to 1	7 to 1
BHp (max.).....	101 @ 3500 rpm	106 @ 3500 rpm	112 @ 3500 rpm	145 @ 3800 rpm	155 @ 3900 rpm
Torque (lb. ft.) max.....	185 @ 1300-1600 rpm	194 @ 1900-2100 rpm	217 @ 1400-1700 rpm	244 @ 1900-2100 rpm	284 @ 1700-2000 rpm

providing the necessary flexibility of design for the future in the event that dual carburetion may be required.

A new type Holley carburetor is only 4 in. high at the throttle body and has metering parts as well as the float housed in one compartment. The outer cover of the compartment is of clear glass, permitting visual inspection. Among the principal features of the carburetor are: diaphragm type accelerating pump; diaphragm type economizer; balanced

pressure from the air stream rather than from the atmosphere; fuel inlet with submerged discharge; combined choke and fast idle cam; easily replaceable valve-and-seat and float assembly; replaceable metering unit held with five screws. It is claimed that compact construction contributes to improved operation on grades, while the feature of fuel-cooled jets reduces percolation and hot starting difficulties.

All five engines employ the well-known Autothermic type aluminum

alloy pistons, and have full pressure lubrication. The three new engines, in addition, are fitted with a full-flow type oil filter built into the engine. The two big V-8's have five main bearings of heavy duty copper-lead type.

Other noteworthy features of the three new engines are as follows: integral valve guides bored in the cylinder head, providing better heat transfer and lowering exhaust valve temperature by 100 to 125 F; adoption of timing chain drive; use of Ford valve rotators on intake and exhaust valves to promote longer life, better seating and freedom from valve sticking; adoption of all-steel cylinder head gaskets which maintain an excellent seal without frequent tightening.

Features exclusive to the two big V-8's, include: an integral water pump; exhaust valve inserts of special alloy; fuel pump location to eliminate vapor lock; re-circulation by-pass in the cooling system to permit faster engine warm-up.

All truck models are available either with 5-Star cabs or 5-Star Extra cabs, the latter being extra cost options. The 5-Star Extra cabs feature foam rubber seat padding, insulated headlining, two outside door locks, cigar lighter, dome light with automatic door switches, arm rests, interior insulation, and sound deadener.

The Series F-1 through F-8 trucks range from light pick-up units of 114-in. wheelbase and 4700 lb GVW up to extra heavy duty trucks with a maximum 195 in. wheelbase and GCW ratings up to 41,000 lb.

The overhead valve six is supplied on Series F-1 through F-5 trucks, the F-3 parcel delivery, and the F-5 school bus. The 239 cu in. V-8 also is offered on the Series F-1 through F-5, as well as F-6 trucks, F-5 and F-6 C-O-E, and

(TURN TO PAGE 168, PLEASE)

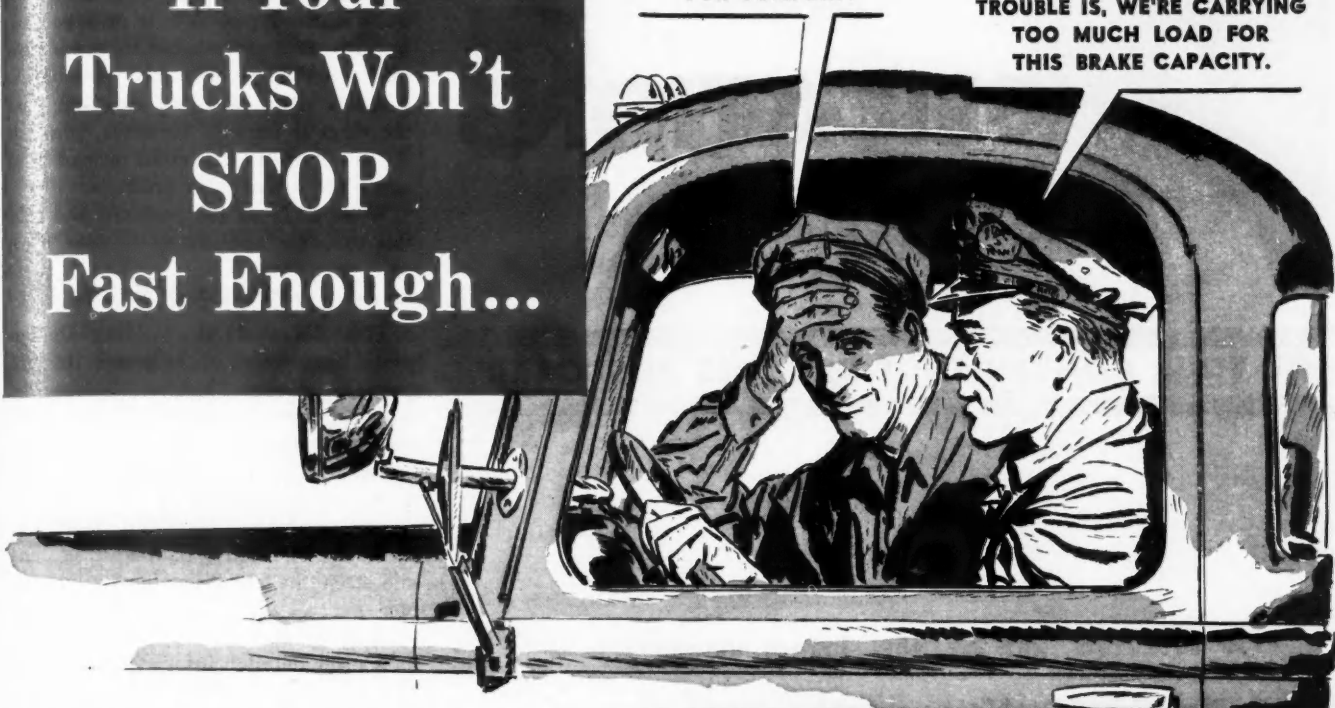
1951 New Truck Registrations by Makes and States*

STATE		Auto-car	Brook-way	Chevrolet	Diamond T	Dodge	Federal	Ford	FWD	GMC	International	Ken-worth	Mack	Peter-bilt	Reo	Ster-ling	Stude-baker	White	Willys	All Others	Total
Alabama	Nov.			935	5	1	271	2	631	304	236		24		7		126	36	34	2	2,614
	11 Mos.	9		8485	17	26	2036	10	5761	2259	1510		164		38		769	206	332	22	21,627
Arizona	Nov.	1		212			61		164		120		2				19	7	25	4	688
	11 Mos.	13	2	2242	9	11	726	6	1579	805	567	16	20	6	23	2	223	69	200	35	6,554
Arkansas	Nov.			575			131	1	351	223	102						71	11	13	2	1,482
	11 Mos.	2		7508	12		1676	1	5079	2847	1462		39		31		730	94	311	13	19,607
California	Nov.	7		1570	25	22	742	2	1227	10	606	409	19	26	28	10	197	68	129	14	5,115
	11 Mos.	205	8	10196	400	325	8184	33	14180	96	7390	236	413	243	133	104	2103	541	1237	144	58,788
Colorado	Nov.			371			107	3	232		157		3		3		62	3	48	5	1,120
	11 Mos.	22		4364	20	46	1001	11	3039	8	1333	1104	21	48	33		401	42	490	32	12,005
Connecticut	Nov.	10		155	5	2	61	5	185		38		19		6		23	17	31	4	596
	11 Mos.	60	64	2438	90	84	910	42	1700	1	585	775	301		66	11	229	128	238	26	7,749
Delaware	Nov.	1		79			32		69		9						8	3	2		229
	11 Mos.	6	14	902	12	5	256		790	1	178	279	14		12		82	19	31	10	2,611
Dist. of Columbia	Nov.			64			22		46		21										188
	11 Mos.	9	3	965	24	42	283	6	564		341	287	19		18		20	37	67	10	2,695
Florida	Nov.	6		526	10	10	236		415		153		24		5		105	21	107	7	1,792
	11 Mos.	14	2	6969	139	72	2772	4	5071	2	1717	1463	317		106		1091	216	967	113	21,035
Georgia	Nov.			608			164		368		147		20		3		72	20	17	7	1,534
	11 Mos.	2	7	10767	27	16	2656	6	7867	2	2753	1968	238		57	2	1211	243	394	50	28,267
Idaho	Nov.			177			49		99		80						26	43	520	7	546
	11 Mos.			2219	44	5	881	13	1622	1	1162	828	42	85	18	1	317	43	620	7	7,580
Illinois	Nov.	8		1113	38	11	397	2	777		248				3		91	35	73	15	3,264
	11 Mos.	54	5	15302	605	221	5326	28	9874	7	3742	5153	1	276	141	28	1046	604	724	149	43,336
Indiana	Nov.	4		804	8	14	295	1	646	1	186		19		11		136	44	14	14	2,632
	11 Mos.	9	3	9579	102	86	3085	24	6918	6	1990	3690	187		112		1380	509	498	65	28,243
Iowa	Nov.			423	5		126		348		105				5		54	15	12		1,283
	11 Mos.	1		7345	100	32	1811	3	5705	1	1507	3047	56		32		634	155	270	42	20,741
Kansas	Nov.			590	10		179	1	355		154		3		2		68	9	40	5	1,720
	11 Mos.			6986	52	38	1530	8	4654	5	1811	2197	14		19		557	128	7	21	18,437
Kentucky	Nov.	7		519	6	3	134	2	368		175		7		7		61	88	46	21	1,478
	11 Mos.	1		6540	59	25	1529	9	4578	2	1756	1640	55		31		595	88	666	26	17,606
Louisiana	Nov.	3		540			116	1	412		126				1		85	9	45	1	1,419
	11 Mos.	16		6835	86	13	1310	1	5438	5	2022	1293	38		8		765	76	348	13	18,265
Maine	Nov.		1	103			50		116		52						16	54	172	11	5,218
	11 Mos.	8	13	1752	5	5	443	10	1354		569		121		2		201	3	5	3	857
Maryland	Nov.	2	5	261	2		111	4	228		96				2		31	5	174	17	10,580
	11 Mos.	28	70	3534	17	83	1299	55	2550	1	969	1124	198		56	8	245	154	174	17	9,779
Massachusetts	Nov.	9	4	277	4	10	116		258		86				7	5	33	30	13	2	979
	11 Mos.	188	97	4171	108	184	1687	37	3447	7	1182	1777	371		135	44	393	340	255	45	13,858
Michigan	Nov.	18		700	10	10	303	1	873		194		13		17		89	11	26	14	2,341
	11 Mos.	77	2	13510	101	241	4232	82	12140		3070	2410	1	203	262		750	302	470	63	37,916
Minnesota	Nov.			391	8		108		394	2	86				1		40	18	34	6	1,247
	11 Mos.	5		6108	67	45	1999		5014	21	2535	19	71		32	1	753	135	367	66	18,731
Mississippi	Nov.			592			127		399		286						69	64	412	10	1,674
	11 Mos.			7391	5		1433	7	4842	1	2778	1440	65		3		652	35	27	8	19,103
Missouri	Nov.	2		864	5	5	284	1	563		272		2		6		87	35	27	8	2,412
	11 Mos.	13		12121	69	105	3258	3	7772	3	3627	2622	94		66	3	893	515	413	40	31,616
Montana	Nov.			211			174		174		66						16	46	629	5	8,267
	11 Mos.	1		2630	47	5	561	4	1940	4	887	1092	38	5	44		310	46	25	1	1,078
Nebraska	Nov.	5	1	364	7	1	65		313	4	84		3		7		37	135	521	22	15,945
	11 Mos.			5666	143	16	144		4030	9	1673	2043	33	57	41		557	7	6	1	1,668
Nevada	Nov.			55			18		363		23						7	4	69	1	1,724
	11 Mos.			552	4		19		37		14						54	1	6		155
New Hampshire	Nov.		1	46			19		37		14						8	21	126	12	3,024
	11 Mos.	10	12	988	6	17	308	3	749	2	284	278	85		16	1	108	49	44	5	1,971
New Jersey	Nov.	9	22	594	11	14	259	11	545		157		38		7	4	45	48	589	72	23,401
	11 Mos.	184	361	7877	144	267	2533	85	5591	12	2033	1915	800		105	25	521	487	16	1	494
New Mexico	Nov.			164			50		108		66				4		32	3	16		5,678
	11 Mos.	4		2209	5		448		1264	2	799	399	2		31		255	76	188	12	3,333
New York	Nov.	30	68	1001	42	11	424	6	812	2	282		41	2	31		62	10	82	32	46,389
	11 Mos.	336	741	14563	518	397	6062	117	9732	43	3766	4850	1451		516	30	994	1145	1135	283	1,999
North Carolina	Nov.	4		714	4	2	245		430		201		28		4		108	282	483	272	27,006
	11 Mos.	70	4	9942	32	78	2383	8	6927	1	2842	2151	411		39	3	1078	282	483	272	27,006
North Dakota	Nov.			155	2		42		190		45						20	4	24		587
	11 Mos.			2131	11	5	580	7	1911		530	1262	1		3		259	4	202	4	6,837
Ohio	Nov.	5	2	917	28	27	423	3	760		211		25		23		131	60	106	20	3,059
	11 Mos.	110	14	14034	243	336	4894	60	10847	15	3330	4511	458		262		1376	1171	1110	136	42,895
Oklahoma	Nov.	1		704	1		157		440		154				7		76	29	36	7	1,918
	11 Mos.	2		7755	7	51	1800	2	5253	38	1899	1909	9		40		579	235	307	20	19,941
Oregon	Nov.			274	2		100		216		134		6		15		33	13	77	1	980
	11 Mos.	20		4104	81	38	1657	18	2788	1	1694	1527	81		215	17	414	164	919	62	13,838
Pennsylvania	Nov.	31	34	1340	29	43	555	14	973		313		121		21	2	118	87	92	19	4,318
	11 Mos.	248	565	15799	280	216	6756	117	11390	11	4024	5395	1122		242	27	1338	1005	1101	188	49,824
Rhode Island	Nov.	11		66			28		48		18						8	5	3		223
	11 Mos.	70	6	628	17	23	110		364		195	272	59		2	2	99	62	50	11	2,786
South Carolina	Nov.	2		705	1	7	110		3237		117		7				53	12	4	2	1,506
	11 Mos.	14	1	5982	13	17	1253		3237	2	1311	914	130		7		460	115	135	22	13,613
South Dakota	Nov.			121			136		136		41						22	24	483		483
	11 Mos.			1087	43	2	632	2	1541		609	1260	3		11		274	18	295	4	6,590
Tennessee	Nov.			473			182		335		167						66	19	14		

If Your
Trucks Won't
STOP
Fast Enough...

BROTHER! THAT
WAS TOO CLOSE
FOR COMFORT!

YOU'RE NOT KIDDING!
TROUBLE IS, WE'RE CARRYING
TOO MUCH LOAD FOR
THIS BRAKE CAPACITY.



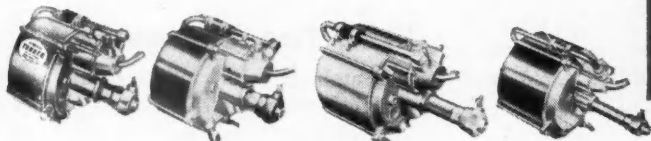
Close calls call for quick action! And, you'll get quick action if you contact your nearest Bendix* Vacuum Power Brake dealer. He'll show you how to Load-Rate your brakes so that your power brakes exactly fit the loads you're hauling. When he's through, your trucks will stop faster and your brakes will last longer.

You see, most trucks are sold with a power brake matched to the rated capacity of the truck. Later when the truck is beefed-up to handle heavier loads . . . or if the run is over hilly and rough terrain . . . the original power brake just isn't adequate.

If your trucks are under-braked for this very reason, step-up your power brakes with a Bendix* Load-Rated Hydrovac*. The range of Hydrovac models is wide enough to let you pick the *right* power brake for your job.

*REG. U. S. PAT. OFF.

A MODEL FOR EVERY LOAD
FROM ½ TON TO THE BIGGEST!

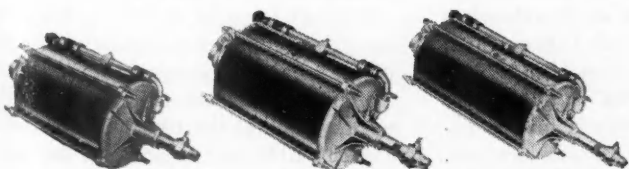


THE TONNER

THE SPECIAL

THE STANDARD

THE SUPER



THE ATLAS

THE MOGUL

THE DREADNAUGHT

It's Time to
MATCH the BRAKING
to the LOAD with
Bendix
HYDROVAC
THE
"Load Rated"
POWER BRAKE!

Bendix SOUTH BEND
PRODUCTS DIVISION INDIANA

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FREE PUBLICATIONS

FOR YOUR CONVENIENCE USE THIS POSTCARD

**A selected list of the latest literature—
catalogs, pamphlets, charts—chosen to help
fleetmen improve operation and maintenance.**

L126. Autocar Record Book

Autocar has brought out a new edition of its record book to aid heavy-duty truck owners in keeping a day-by-day record of their operation costs. An operator keeps one book on each of the vehicles in his fleet. The book is made up of 12 double-page cost sheets, one for each month of the year. Space is provided for a truck's daily record of miles traveled, of trips, units (tons, gallons, etc.) carried, unit miles, such fixed charges as interest and insurance, driver's and helper's wages, the quantity and cost of gasoline, oil and grease used, the cost of garage labor, repair parts, tires and tire repairs, garage supplies, etc.

Write L126 on the accompanying post card for your copy.

L127. Engine Oil Data

Here is a comprehensive study of modern automotive engine oils, a study that will be found invaluable to every fleetman. In this 8-page publication the author describes "additives" and

their functions in heavy-duty type crankcase oils. In order to obtain a proper orientation of the position which addition agents occupy in the crankcase oil performance picture the author reviews fundamentals of lubrication, showing the purposes and functions of the lubricant in an engine.

In this informative paper the importance of detergency to deposit problems is outlined. The author explains metal surface protection and how it is obtained. He explains that modern premium heavy-duty and related types of additive oils commonly contain more than one type of additive agent, and shows the importance of balancing and compatibility.

Under a heading of Service Characteristics of Additive Oils he warns that some of the conventional tests applied to used oils may not be applicable when considering additive oils. Thus, used oil analysis must take these factors into consideration. Careful attention to proper oil drain periods is just as important with the use of additive oils. With regard to additive life, he ex-

plains that the extent of additive depletion depends upon type of operation, maintenance practice, time and oil consumption rate, much as it does with non-additive types. It is to be expected, he says, that ash residue from additive oils will find its way into combustion chamber deposits as oil escaping past the rings is burned. However, this ash deposit is low as compared to lead salts and other combustion products.

Write L127 on the postcard and add this valuable publication to your files.

L128. Welding Manual

This "Manual of Welding Design and Engineering," enlarged to 72 pages, contains 62 new photographs and 132 new drawings together with the very latest data and how-to-do-it articles; profusely illustrated with scores of application drawings; weld diagrams; tables containing latest information on melting temperatures, tensile strengths, corrosion factors, charts, etc.

This "pocket library" of welding data gives detailed information on over 100 different "Eutectic Low Temperature Welding Alloys" for use on cast iron, steel, copper, brass, bronze, aluminum, die cast, stainless, nickel, monel, magnesium, etc., and covers all heating methods: Torch, arc, furnace, inert arc, introduction, etc.

Write L128 on the postcard for a free copy.

L129. Safety Posters

Towmotor's popular "Plant Safety Kit," containing useful literature emphasizing safety in the use of materials handling equipment, has been augmented by the addition of four new safety cartoons designed for use as bulletin board posters.

The Plant Safety Kit, which has been distributed widely to industry, consists of "traffic markers," safety instructions for operators, and humorously illustrated bulletin board "safety tips."

Write L129 on the postcard for this new set of posters.

L130. Tire Change Poster

Containing 10 fundamental safe practices which it recommends be used in changing tires, particularly those for trucks and other commercial vehicles, this illustrated poster published by Goodrich is available.

Only 11 in. wide and 17 in. long the poster is suitable for installation in all places where tire changers work. Illustrations, in cartoon style, graphically portray each of the 10 safety practices.

Write L130 on the postcard for your free copy of this poster.

P124. Fender Flaps

To help meet the splash-guard demand created by the passing of state laws across the country, B. F. Goodrich Co., Akron, Ohio, is marketing a fender flap under the "Miller" brand name. The flap has a steel bar in the top section for attachment and 1 1/4 in. ribs down the sides. The rib is omitted along the bottom to avoid collection of road matter. They are 2 ft wide and either 30 in., 36 in., or 40 in. long.

P125. Piston Rings

Announcement has been made by the Sealed Power Corp. of a new line of chrome piston ring sets to be known as KromeX. The sets will feature a chrome alloy top ring with chrome on the face plus a steel oil ring with the steel rails chrome faced. When installing these rings, it will not be necessary to break the glaze on the cylinder walls.

P126. Rolling Doors

Lookout windows are now being built into the slat-type rolling doors being made by the Kinneer Mfg. Co., Columbus, Ohio. Narrow transparent panes of plastic are available in one or more of the interlocking steel slats which coil upward above the lintel.

The window slats placed at or near eye level permit anyone inside a building to see who is on the outside of the door before opening it. Also, they allow entry of daylight through the door when it is closed.

P127. Truck Stand

By using small steel disks or "slugs" in a hollow support frame Lempco Products Co., Bedford, Ohio, has developed a 10-ton truck stand. The stand is set up by lifting the upper cylinder into place under the chassis. The disks, housed in this upper tube, drop through an opening in its interior and into the base of the stand. The manufacturer claims that these slugs provide a solid foundation for the load in a raised position. The slugs drop back into the top cylinder to permit the stand to collapse.

P128. Tubing

A general-purpose coiled tube made of aluminum alloy has been introduced by Aluminum Company of America, Pittsburgh, Pa. It carries the Alcoa Utilitube trademark and may be used for fuel oil, gasoline, and lube oil lines for internal combustion engines. It may also be used in air, vacuum and hydraulic lines for brakes and instruments.

NEW PRODUCTS

FOR YOUR CONVENIENCE USE THIS POSTCARD

Illustrating and reviewing newest developments

in parts, accessories, shop equipment and tools.

For more information use the attached postcard.

P129. Power Take Off

A take-off unit for standard trucks with standard transmissions is now being marketed by Mobile Power Inc., Detroit. Called the "Tangen Power Drive," the manufacturer states the unit becomes an integral part of the transmission, deriving its power through the main drive gear in the transmission. The unit makes use of 97 per cent of the engine power, will not effect the standard driving mechanism and may be removed from one transmission and installed in another.

P130. Work Light

A portable work light with a magnetic base has been announced by Enco Mfg. Co., Chicago, Ill. It holds bulbs up to 100 w standard base. Parallel steel ribs in its base provide a magnetic contact surface which the manufacturer states will hold to any flat or curved surface with a 100-lb pull. The lamp is mounted in a ball and socket bracket assembly which may be locked in the desired position.

P131. Sander-Polisher

Light weight and small size are among the advantages claimed for the power sander being made by Millers Falls Co., Greenfield, Mass. In addition to use with standard wheels, disks, and brushes, etc., the manufacturer states the sander will work with the new laminated phenolic grinding wheels and disks. Its no-load speed is 4500 rpm. The universal type motor is designed for ac or dc, 25 to 60 cycle, 110 v current with a rating of 5.5 amps at full load.

P132. Screw Driver

For recessed Phillips screws, the Continental Screw Co., New Bedford, Mass., has developed a hand driver that uses Phillips insert bits. The manufacturer states that the dimensions of both the bits and the screws are controlled by the same original master tools. The driver is made of a heat-treated tool steel and comes packaged with six removable bits.

(TURN TO NEXT PAGE, PLEASE)

New Product Descriptions

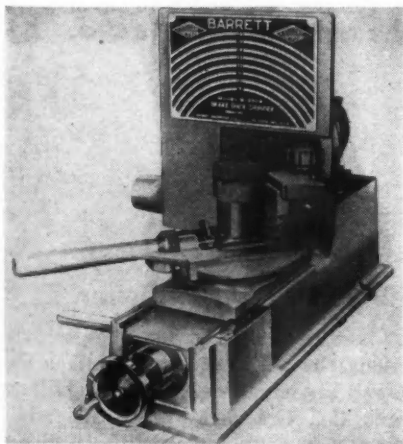
Continued from Page 75

P133. Tube Bender

For offsets and bends up to 180 deg in $\frac{3}{8}$ in., $\frac{1}{2}$ in., and $\frac{5}{8}$ in. OD, K and L copper tubing, brass, Bundy weld steel and other light gage tubing, Tal Bender Inc. of Milwaukee, Wis., has a new bending tool. Made of light weight metal, the tool requires no vise or fixture. The tubing is locked into position for bending, with the free end drawing the tube to the desired pitch or bend. This may be from a slight curve or offset, to a complete circle.

P134. Shoe Grinder

A heavy-duty, bench mounted, brake shoe radius grinder is offered by Barrett Equipment Co., St. Louis, Mo. It will handle shoes from 9 in. to 16 in. with widths up to 4 in.



A chart for determining the diameter of the shoes is mounted on a plate above the grinder's abrasive wheel. Power is supplied by a $\frac{1}{2}$ hp, 115-230 v ac motor. A motor-driven dust collector is offered as accessory equipment.

P135. Leak Detector

A method for detection of water leaks, utilizing the phenomenon that certain materials will fluoresce—or glow—when activated by ultra-violet light, has been announced by the Allen Electric and Equipment Co., Kalamazoo, Mich.

One of the most effective uses for the new light—identified as Model E-163—is in the detection of minute water leaks caused by slight cracks or crevices in cylinder blocks, heads, radiators, etc.

As the loss of water or other coolant is sometimes very slight, these small cracks are often difficult to locate.

In testing an engine block and radiator, a very small quantity of the fluorescing powder is mixed with the water in the radiator. The solution circulating through the cooling system will seep through any crack or crevice that may exist. By passing the ultra-violet light beam over the area to be examined this seepage will be discovered because of its glow, and location of the leak established.

P136. Fuel Unit

An emergency fuel unit and engine trouble-shooter, has been announced by The Viking Tool & Machine Corp., Belleville, N. J.



The "Gas-O-Lator" is a starting device for vehicles stalled due to any fuel system breakdown. Operating independently of the regular fuel system and by-passing the gas tank, fuel pump and all lines, the unit is installed on a carburetor, and vehicle under normal acceleration, the manufacturer states.

P137. Oil Filter

An oil filter kit for Chevrolet passenger cars and trucks, 1949-51, is now available from Purolator Products Inc., Rahway, N. J. It is complete with all necessary parts and may be installed in 20 minutes.

P138. Heavy-Duty Battery

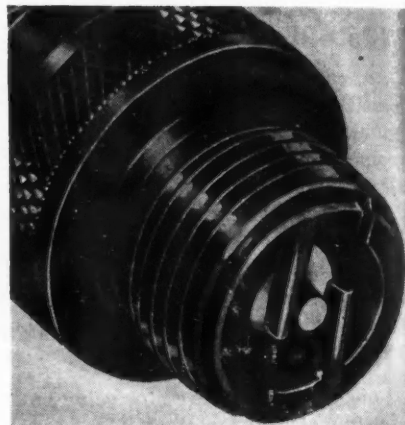
A new heavy-duty battery has been developed by Clarite Battery Inc., Salt Lake City, Utah, under the Clarite trademark. Of particular note is its lower specific gravity of 1.225 when charged.

P139. Back-Up Switch

When shifting into reverse, this switch automatically turns on rear back-up lights or signals. It is being marketed by Auto Lamp Mfg. Co., Chicago, under their "Pathfinder" trademark.

P140. Spark Plug

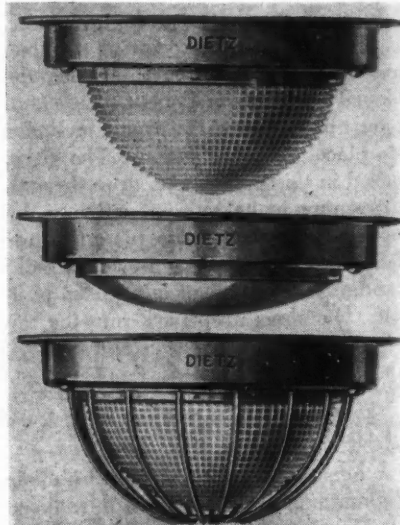
A shrouded design has been developed in this spark plug by Hastings Mfg. Co., Hastings, Mich. The design takes electrodes out of the combustion



heat. Hastings states that the electrodes are in this way protected and will not burn as readily. There is also a copper gasket developed by Hastings which will provide a tight seal without shrinking and an aluminum oxide insulator said to dissipate heat faster.

P141. Dome Lights

Three models have been added to the line of interior lights being made by R. E. Dietz Co., Syracuse, N. Y.



These are shown (top to bottom) as Model 39, which is 4 in. in diameter and has an overall depth of $2\frac{1}{2}$ in. Model 39-M is $1\frac{1}{8}$ in. deep. Model 39 is the same size as 38 but is equipped with a wire guard.

(TURN TO PAGE 186, PLEASE)

CCJ's Truck Specifications

COMPILED FROM DATA SUPPLIED EACH MONTH BY MANUFACTURERS

KEY TO DEFINITIONS

MAKE AND MODEL

Only Domestic Truck Models are listed.

OPTIONAL UNITS

For the express purpose of best fitting the truck to the individual job most of the models listed can be provided with optional engines, transmissions, axles, etc., and these models when so equipped are considered standard stock models.

CHASSIS LIST PRICE

The chassis list price applies to the minimum standard wheelbase with standard tires and standard equipment. All prices are F.O.B. factory. Chassis list price does not include the price of the Cab unless otherwise noted.

RECOMMENDED GROSS VEHICLE WEIGHT FOR NORMAL SERVICE

The Gross Weights published herewith are

those supplied by manufacturers as their Recommended Gross Vehicle Weights for Normal Operating Conditions, and are based upon the Maximum Authorized Tire Size listed. In actual practice the manufacturer may either increase or decrease the gross vehicle weight rating when either favorable or unfavorable operating conditions are involved. Since the proper performance of a motor truck depends upon many factors, including grades, road conditions, etc., the gross weights that a manufacturer is prepared to recommend will vary with particular conditions, and the manufacturer's own standard of safety factors. Specific recommendations, therefore, should be obtained from the manufacturer's representative.

CHASSIS WEIGHT

The chassis weight listed includes the weight of the minimum standard wheelbase chassis, with cowl, with standard tires, with standard equipment, with crankcase and cooling system full, and 5 gallons of fuel in the tank. It does not include the

weight of the Cab. This applies to C.O.E. as well as conventional chassis types. Exceptions are noted.

STANDARD TIRE SIZE

The standard tire size listed is that which is included in the Chassis List Price.

MAXIMUM AUTHORIZED TIRE SIZE

The tire size listed in this column is the maximum size recommended by the manufacturer of the chassis for the Gross Vehicle Weight for Normal Operating Conditions. It is furnished at extra cost, if it differs from the standard size. Dual rears are understood; exceptions noted.

MINIMUM STANDARD WHEELBASE

The minimum standard wheelbase is the so-called standard wheelbase on which the Chassis List Price is based.

MAXIMUM STANDARD WHEELBASE

The maximum standard wheelbase is the extreme end of the standard range of wheelbases offered by the chassis maker.

MAXIMUM BRAKE HP.

Maximum Brake Horsepower at Given R.P.M. is actual dynamometer reading without accessories.

GEAR RATIO RANGE

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

TRACTORS

Unless given the designation (N)—meaning not available as a tractor—all standard models may be assumed to be available as tractors. Exclusively Tractor models are designated (T).

KEY TO ABBREVIATIONS

MAKES—ALL

B—Bendix.
BL—Brown-Lipe.
Bu or Bud—Buda.
BW—Bendix-Westinghouse.
C—Chevrolet.
Cl or Cla—Clark.
Con—Continental.
Cum—Cummins-Diesel.
E—Eaton.
F—Ford.
Fu—Fuller.
G—Goodyear-Hawley type.
H—Hotchkiss.
Her—Hercules.
HS—Hall-Scott.
L—Lockheed.
LH—Lockheed front, Wagner "hi-Tork" rear.
LT—Lockheed type front, Timken rear.
LW—Lockheed front, Wisconsin rear.
M—Midland.
N.P.—New Process.
O or Ow—Own.
Op or Opt—Optional.
Shu—Shuler.
Spi—Spicer.
T or Tim—Timken-Detroit Axle Co.
Tw—Timken-Detroit—Westinghouse.

TW—Timken-Detroit—Wisconsin.
WG—Wagner Gear.
Wau—Waukesha.
W or Wis—Wisconsin.
Wg—Wagner "hi-Tork."
Ws—Westinghouse.
WW—Westinghouse or Wagner

WHEELS DRIVEN

2F—Forward unit of Rear Axle Group.
2R—Rear Unit of Rear Axle Group.
4R—Forward and rear units of Rear Axle Group.
6—All wheels.

BRAKES—SERVICE

Location
4—Four Wheels, front and rear.
4r—Four Wheels, rear only.

Type
I—Internal.
X—External.

Operation

A—Air.
H—Hydraulic.

V—Vacuum.
D or Dp—Dual Primary.

BRAKES—HAND

Location
C—Center of double propeller shaft.
2—Rear wheels.
4—Four wheels.
6—Six wheels.
P—Back of Power Divider.
J—Jackshaft.
T—Transmission.
F—Driveshaft.

Type

D—Tru-Stop disk.
I—Internal.
M—Mechanical.
X—External.
PD—Two drums on rear of power divider.

BRAKE DRUMS

Material
a—Cast alloy iron.
A—American Car Foundry.
c—Cast iron.
cc—Composite Front, Cast Iron in rear.

Cc—Centrifuge.
Ci—Copper iron.
Co—Composite.
D—Dayton.
E—Ermalite.
G—Gunite.
N—Nickel iron.
S—Steel.

(Where a combination of any of the above is used, the first reference mark applies to the front and the second to the rear drums.)

FRAME

Type
C—Channel.
T—Channel tapered front and rear.
L—Channel reinforced with liner.
B—Channel reinforced with both liner and fishplate.
P—Channel reinforced with plate.
TL—Channel tapered front and rear reinforced with liner.
D—Drop Center.
TF—Tapered front.
A—Straight section sidemembers, lined with oak inserts.

Z—Reinforced (X) member frame, box type sections.

REAR AXLE

Final Drive and Type

B—Bevel.
CD—Chain Drive.
F—Full-floating.
H or Hy—Hypoid.
d—Dual range axle.
2—Double Reduction.
S—Spiral bevel.
W—Worm.
3/4—Three Quarters Floating.
1/2—Semi-Floating.
T—Torque Tube.

GEAR RATIOS

(**) Only one ratio.

Drive and Torque
H—Hotchkiss (springs).
R—Radius Rods.
L—Parallel Torque Rods.
T—Torque Arm.

GOVERNOR STANDARD

Y—Yes.
N—No.

KEY TO REFERENCES

c.f.—Cab Forward design.

c.o.e.—Cab-Over-Engine design.

(D)—Diesel-engine equipped.

(T)—Designed for tractor use only.

(C)—Converted Ford or Chevrolet Model.

A—Denotes "Includes Cab" when used with weights or prices.

CHEVROLET

†—Forward control chassis for Door-to-Door delivery bodies. These chassis do not have cowl.

•—Includes spare tire, full fuel tank and cooling system.

•—7.50/20 can be used on the front with no decrease in G.V.W. when 8.25/20 are used on dual rear wheels.

•—Own Loadmaster engine available at extra cost.

•—8.25/20 front tires are required when 9.00/20 dual rears are used.

††—Diameter: (Average) Front, 2.6858; Front Center, 2.7168; Rear Center, 2.7478; Rear, 2.7788. Total Length 54".

†—4 speed transmission available.

††—Also available in 5.14 ratio.

•—5.43 available.

•—Two speed axle available.

CORBITT

•—Available with optional tires and axles for less G.V.W. rating.

††—Also available with Cummins HRB 600, HRBB600 and NHB600.

CROSLLEY

•—Pick-up truck only; panel delivery 1360.

†—Front 1.375 x 1.312; 3 Center 1.375 x .870; 1 Rear 1.500 x 1.499.

DODGE

•—Front only; Rear 7.00/16S.

•—Front only; Rear 8.25/16.

•—Front only; Rear 6.50/20S.

†—Front only; Rear 7.50/20.

†—Front only; Rear 9.00/20.

†—Front only; Rear 10.00/20.

†—Rear of transfer case.

DUPLEX

†—Torque Divider, Timken T70-2 speed.

FEDERAL

•—Diesel engine obtainable.

•—Five speed transmission obtainable.

•—Auxiliary transmission Spicer 6231B with 3 forward speeds.

•—Auxiliary transmission Spicer 703F with 3 forward speeds or 8031.

†—55M, 60M and 65M have single speed, double reduction rear axle.

†—Radius rods obtainable.

†—For wheelbases below 196" 9 x 3 x 1/4.

•—For shorter wheelbases, 10 x 3 1/4 x 1/4.

††—Diesel engine obtainable.

•—Auxiliary transmission Spicer 703F or 8031 with 3 forward speeds.

††—Overdrive optional.

•—Torque Divider Timken T70-2 speed, T50 obtainable.

†—SW3013 obtainable.

††—SW3010 or SD3020 obtainable.

FORD

•—Air brake equipment optional on F-8, Front 16 x 2 1/4, Rear 16 1/2 x 5 1/2, lining area 533 sq. in.

•—Reinforcement 6.58 x 2.21 x .125 extended to include front spring rear brackets and rear spring front brackets.

†—Reinforcement 8.5 x 2.56 x .15 starts at rear of front spring rear brackets and ends behind rear spring front brackets.

†—Cowl to axle.

KENWORTH

††—Timken T13129 PA Trail-Axle.

OSHKOSH

•—Includes cab.

•—1091 cu. in.

•—Hydraulic coupling.

††—Buda 6DC844 optional.

•—Other Cummins 6 cylinder engines optional.

•—Includes cab and dual tires on front, center and rear axles.

REO

•—Model 331 engine can be furnished.

†—Two speed axle available.

†—Double reduction and 2 speed available.

STERLING

†—Rear only; Front 11.00/24.

†—Rear only; Front 11.00/22.

•—Own EJ three speed auxiliary transmission furnished.

†—Timken T70 two speed torque divider furnished.

†—Parking brake at rear of auxiliary transmission.

•—Rear only; Front 12.00/24.

•—Rear only; Front 14.00/24.

•—Rear only; Front 16.00/24.

•—125 cu. in.

††—Own model FJ three speed auxiliary transmission furnished.

††—Timken T76 two speed transfer case furnished.

††—Timken T77 two speed transfer case furnished.

†—Parking brake at rear of transfer case.

††—Tapered, 9 x 7 x 3 1/4 x 1/4.

††—Also available with Cummins Diesel engine and appropriate transmission.

STUDEBAKER

•—Two speed 6.13-8.10 and H.D. 6.20 or 6.80 optional.

††—Two speed 6.13-8.10 optional.

TRUCKSTELL

•—Single front, dual rear.

•—With Baums auxiliary transmission.

††—With Baums power divider.

•—2 speed locked in low axle ratio.

•—Including slip-over reinforcing frame channels.

WARD LA FRANCE

•—Available with optional rear axles.

•—Available with 11.00/22 or 12.00/20 tires for G.V.W. of 60,000 lbs and optional front and rear axles.

††—Auxiliary transmission Fuller 3A65, 3B65, 3A92 and 3B92.

WILLYS

•—Complete vehicle-Pick-up Type body.

•—Three speed transmission, 2 speed transfer case.

†—Or Spicer 55-2 at discretion of manufacturer only.

(Turn to Next Page, Please)

Line Number	MAKE AND MODEL	Chassis List Price		WHEEL-BASE		TIRE SIZES		ENGINE DETAILS						TRANS-MISSION		REAR AXLE		FRONT AXLE	BRAKES				FRAME										
		Minimum	Maximum	Standard	Front and Rear	Dual rear S-single rear	Maximum Authorized (DUAL UNLESS NOTED)	Model	No. of Cylinders	Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake P.M.	Clutch Diameter	Number of Beams	Governor Standard	Make and Model	Forward Speeds	Make and Model	Clear and Type	Drive & Torque	Clear Ratio	Make and Model	Location Type	Lining Area	Drum Area	Drum Material	Hand Location Type	CA Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type	
1	Available	200	200	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BM	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
2	(c.o.e.)	225	225	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
3	(c.o.e.)	250	250	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
4	(c.o.e.)	275	275	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
5	(c.o.e.)	300	300	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
6	(c.o.e.)	325	325	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
7	(c.o.e.)	350	350	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
8	(c.o.e.)	375	375	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
9	(c.o.e.)	400	400	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
10	(c.o.e.)	425	425	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
11	(c.o.e.)	450	450	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
12	(c.o.e.)	475	475	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
13	(c.o.e.)	500	500	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
14	(c.o.e.)	525	525	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
15	(c.o.e.)	550	550	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
16	(c.o.e.)	575	575	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
17	(c.o.e.)	600	600	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
18	(c.o.e.)	625	625	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
19	(c.o.e.)	650	650	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
20	(c.o.e.)	675	675	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
21	(c.o.e.)	700	700	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
22	(c.o.e.)	725	725	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
23	(c.o.e.)	750	750	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
24	(c.o.e.)	775	775	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
25	(c.o.e.)	800	800	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
26	(c.o.e.)	825	825	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
27	(c.o.e.)	850	850	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
28	(c.o.e.)	875	875	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
29	(c.o.e.)	900	900	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
30	(c.o.e.)	925	925	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
31	(c.o.e.)	950	950	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
32	(c.o.e.)	975	975	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
33	(c.o.e.)	1000	1000	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
34	(c.o.e.)	1025	1025	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
35	(c.o.e.)	1050	1050	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
36	(c.o.e.)	1075	1075	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
37	(c.o.e.)	1100	1100	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF	H	6-20	32502H	LAIHV	HF	H	6-20	32502H	LAIHV	314	534	TX	TX	10x33x4	10x33x4	T
38	(c.o.e.)	1125	1125	7.00/20D	8.25/20	8.25/20	10.00/20	Wau BZ	6-34	4.5	283.5	9.178	78-2800	2-34x10	WNG T97	4-Tim E100DP	HF																

Sealed Power

PAX

EBONITED PISTONS

Exclusive features multiply mileage
as much as 4 times!

Every PAX Piston is factory- equipped with famous GI-60 insert

Every Sealed Power PAX Piston comes factory-equipped with the famous Sealed Power GI-60 Contracting Groove Insert—the only dependable, economical, long-lasting preventive of top ring groove wear!

This is a feature of vast importance to every fleet operator, because the top ring groove is the part of every piston that wears out first—the part subject to the greatest heat and the greatest pressure, and the part protected by the least lubrication.

One fleet owner reports pistons equipped with GI-60 Insert average over 200,000 miles!

Sealed Power PAX Pistons are manufactured from genuine Lo-Ex* Aluminum Alloy with silicon base, which dissipates heat most efficiently. Special Eboniting process assures smoother-running engine because piston surface is oil-impregnated, oil-absorbing. Cam-ground, with rugged internal construction for extra strength and fast heat transfer.

*Registered trade mark of Aluminum Co. of America



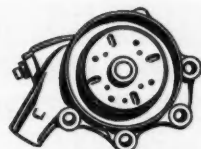
Always use Sealed Power parts for best results



HEAVY DUTY PISTONS—Aluminum or cast iron as indicated; cam-ground, ruggedly designed, heat treated. Equal to or better than original equipment.

WET OR DRY SLEEVES—Machined from closely controlled castings, with exceptionally fine grain and dense molecular structure for long wear.

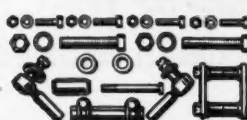
VALVES—Sealed Power Regular Valves, Free Valves and valve parts are made from the correct grade of chrome nickel alloy steel for each engine, for finest performance and maximum service.



WATER PUMPS—Manufactured from finest quality materials to highest standards. Our line is complete.



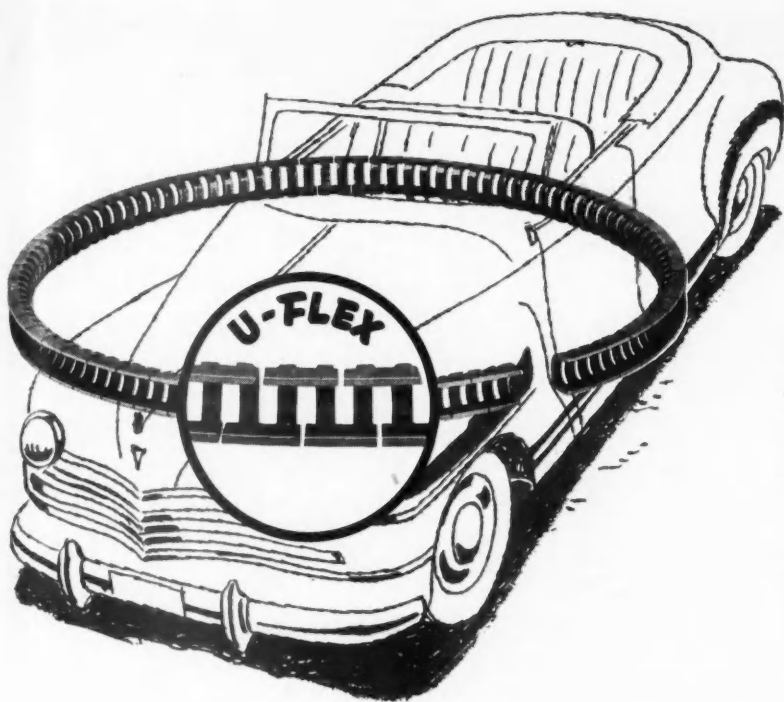
KING BOLTS & BUSHINGS—Manufactured from highest quality forgings, and heat treated to meet your exact requirements.



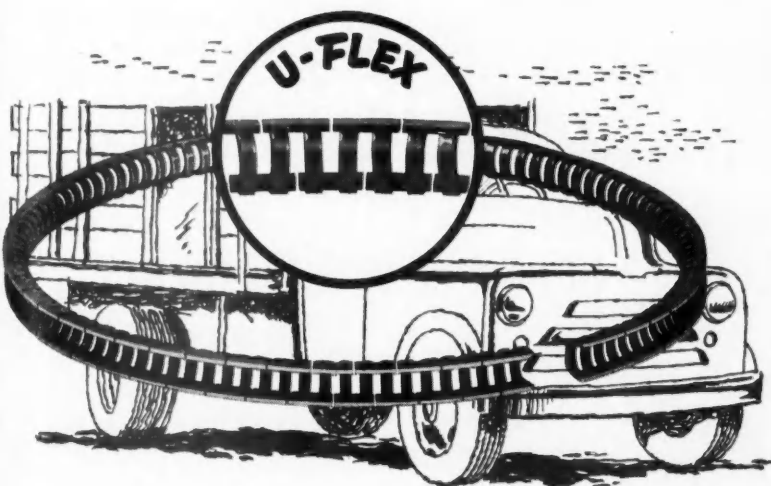
TIE RODS & SHACKLES—Sealed Power Tie Rods, Spring Shackles, and Front Wheel Suspension Parts meet specifications of original equipment.

Continued from Page 80

Line Number	MAKE MODEL	WHEEL-BASE	Chassis List Price	TIRE SIZES	ENGINE DETAILS	TRANS-MISSION	REAR AXLE	FRONT AXLE	BRAKES	FRAME



For engine performance you can take for granted: *count on* Thompson



A PISTON RING to satisfy any oil control problem . . . that's Thompson's U-FLEX OIL CONTROL PISTON RING—used as original equipment by many car and truck manufacturers. Look at it closely. You'll find:

1. SIMPLE DESIGN that permits mass production yet gives premium performance at cost of ordinary rings.
2. EXTREME FLEXIBILITY permits conformity to cylinder walls—round, out-of-round, tapered or worn.
3. ONE-PIECE CONSTRUCTION assures low assembly cost. No shims or expanders required. Oil drain holes are never covered.
4. WIDE OPEN CHANNEL with no obstructions where carbon builds assures maximum oil drainage, long life without clogging.

5. LIGHT WEIGHT allows U-FLEX to follow tapered or out-of-round bores closely at high speed.
6. MULTIPLE GAPS distribute oil uniformly around cylinder wall reducing scuffing in upper ring area.
7. ANY DEGREE OF UNIT WALL PRESSURE, to meet the oil control problem at hand, is possible with U-FLEX spring-type construction.
8. RING GROOVE DEPTH variations do not affect U-FLEX wall pressure.

The Thompson engine test laboratories and staff of well-trained engineers are available to engine builders in solving internal combustion engine problems. Call us on any oil control problem.

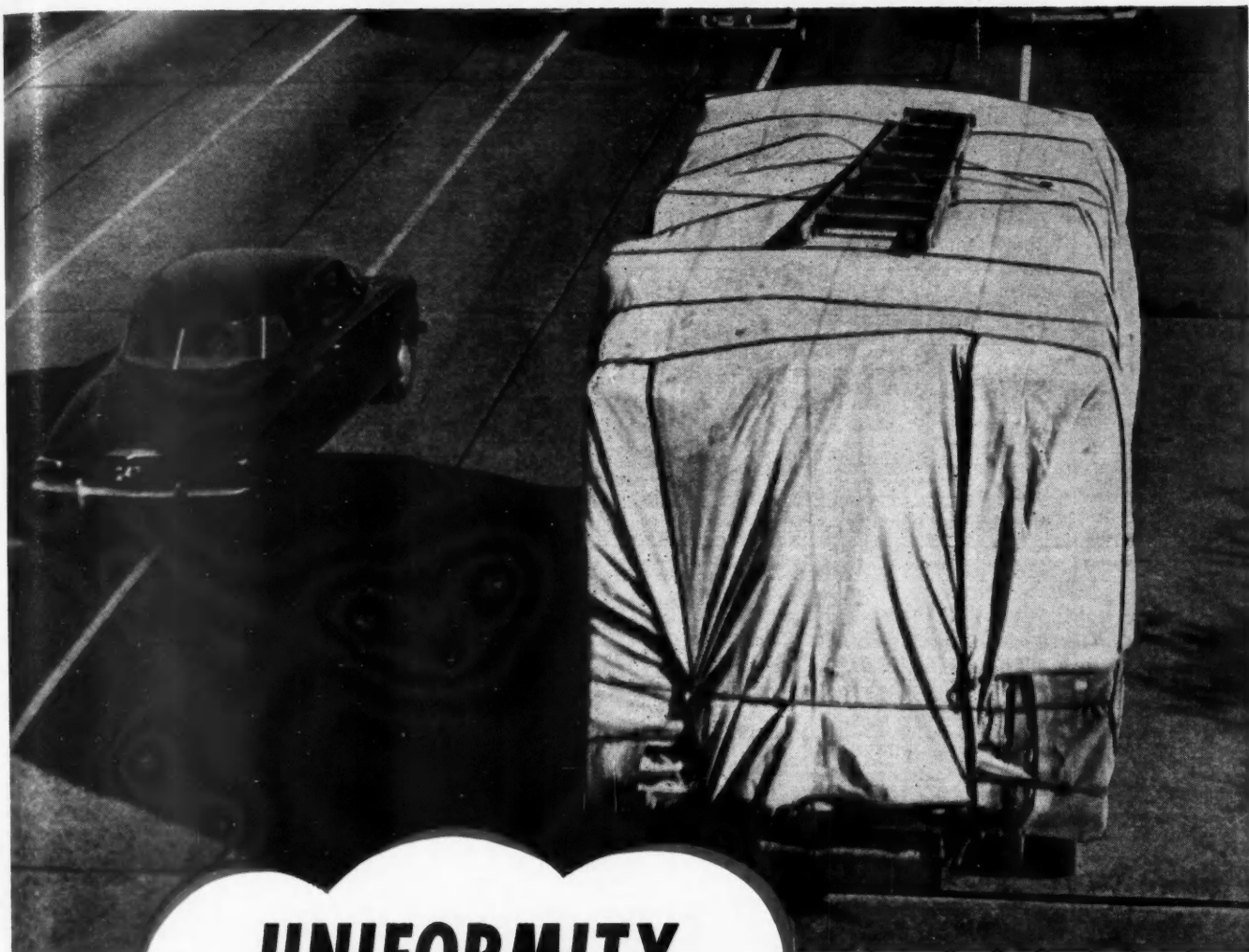
Thompson Products, Inc.

**SPECIAL PRODUCTS
DIVISION**

2196 Clarkwood Rd. • Cleveland 3, Ohio

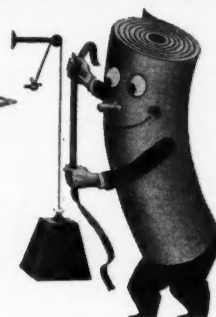
PISTON PINS • VALVE SEAT INSERTS • CYLINDER SLEEVES • WATER PUMPS • U-FLEX PISTON RINGS • CAST IRON PISTONS • VALVE RETAINER CAPS AND LOCKS

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES		MAKE AND MODEL	ENGINE DETAILS				TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES				C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	FRAME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
			Minimum Standard	Maximum Standard			Standard Front and Rear	Dual rear S-single rear		No. of Cylinders	Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Main Bearings	Governor Standard		Make and Model	Forward Speeds	Make and Model	Gear and Type				Range in High	Make and Model	Location	Lining Area	Drum Area	Drum Material	Hand Location																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Makes the Big Difference
In **TRUCK COVER** Fabrics



Gives You Greater Fabric Uniformity



One of a series of comprehensive laboratory controls throughout production to assure uniformity in all Mt. Vernon-Woodberry products. The unit shown automatically tests 6 strands of yarn at one time.

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(Continued from Page 24)

Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE		Gross Vehicle Weight for Normal Service	TIRE SIZES		MAKE and Model	ENGINE DETAILS				TRANS-MISSION			REAR AXLE		FRONT AXLE	BRAKES				C-A Dimensions (Min. Std. W. B.)	FRAME				
			Minimum	Maximum		Standard	D-dual rear Single rear		Maximum Authorized (Less un- tire size)	No. of Cylinders, Stroke	Displacement	Comp. Ratio	Max. Brake H.P. at R.P.M.	Number and Diameter	Main Bearings	Governor Standard	Make and Model		Forward Speeds	Gear Ratio in High	Make and Model	Lining Area			Drum Material	Type	Hand Location	
																												Operation
Reo-Cont'd	F-25T	130	130	130	130	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q3004	HF	H16	42.8	38	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
1	F-25T	150	150	150	150	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
2	F-25T	170	170	170	170	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
3	F-25L	185	185	185	185	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
4	F-25L	2000	2000	2000	2000	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
5	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
6	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
7	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
8	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
9	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
10	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
11	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
12	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
13	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
14	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
15	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
16	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
17	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
18	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
19	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
20	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
21	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
22	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
23	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
24	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
25	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
26	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
27	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
28	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
29	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
30	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
31	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
32	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
33	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
34	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
35	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
36	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
37	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
38	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
39	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
40	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
41	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
42	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
43	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427	6-4x4x4	427.6	15.1	2800	7-3x12.1	Y Cla 290V	5-Tim Q1004	HF	H16	16-6	83	Tim FD900	W41A	620	928	var	TX	65	9x14x3	T
44	F-25L	2600	2600	2600	2600	11.00/22	11.00/22	Con T6427																				

For Key to References and Abbreviations See Page 79

Turn to Page 88, Please)

you get the air compressor
that fits your
particular requirements...

when you specify Wagner Air Brake Systems

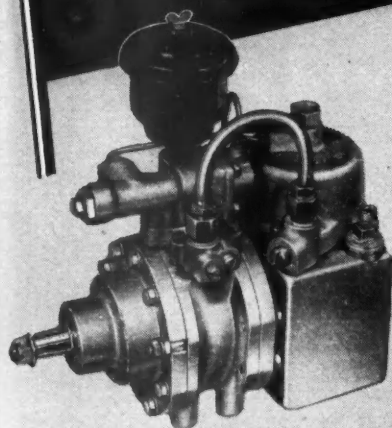
No single air brake system can adequately fit every application. Functional design of the vehicle . . . horsepower rating of engine . . . weight of load . . . number of axles . . . these are only a few of the factors that must be considered. Neither can one type of air compressor be applied to all types of vehicles. That's why Wagner Engineers have developed three compressors with pumping capacities of 7, 9 and 12 C.F.M. . . . flange or base mounted . . . belt or direct driven . . . either air or water cooled. These compressors utilize the rotary principle—known for high efficiency and troublefree service on all types of heavy-duty vehicles.

check these features:

- ✓ **Rotary motion** of all moving parts. Shaft is mounted on two bearings—Friction loss is low; operating efficiency high.
- ✓ **Uniform Torque Load**—Thousands of small overlapping air compression impulses per minute maintain a uniform load. Smooth quiet operation; long compressor life.
- ✓ **Plenty of Air**—High volumetric efficiency assures fast air recovery.
- ✓ **Pre-determined Air Pressure Range** automatically maintained.
- ✓ **Simple Air Pressure Adjustment**—A single, easily reached, pressure adjustment screw regulates the maximum air pressure delivered to the tank.
- ✓ **No Carbon Formation in Air Line**—Oil separation and cooling before air is discharged from compressor reduces the air temperature preventing carbon formation.
- ✓ **Compact**—Requires minimum installation space.
- ✓ **High Top R. P. M.**—Compressor can be operated as high as 2500 R.P.M., making high reduction drives unnecessary.

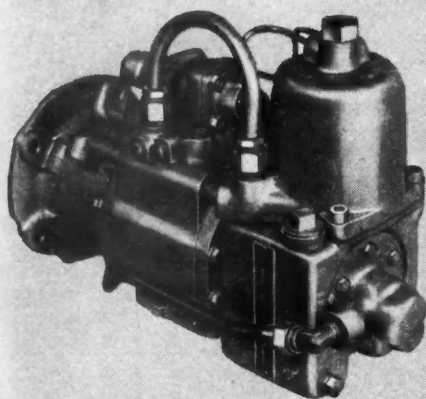
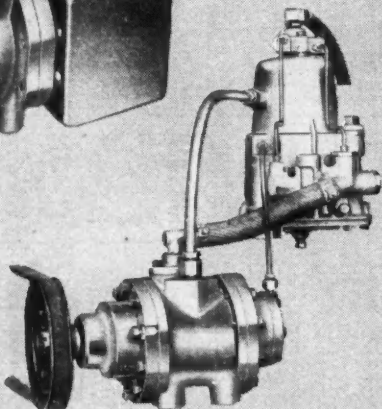
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Typical "Integral Unit"
Type Rotary Air Compressor—Air Cooled—
Base Mounted—Self Contained Lubri-
cation.

Typical "Remote Dome" Type Rotary Air Compressor—Air Cooled—Base Mounted—Self Contained Lubrication. Used where clearances do not permit mounting the "Integral Unit."



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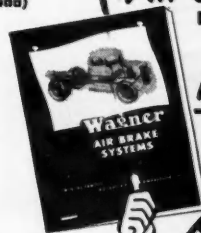
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Continued from Page 86)

Line Number	MAKE MODEL	Chassis List Price	WHEEL-BASE		Gross Vehicle Weight (See definition) for Normal Service	TIRE SIZES		Tire Size (Dues note) Maximum (Dues note) Standard	Rear	Max. Authorized (Dues note) (Dues note) Standard	Make and Model	ENGINE DETAILS						TRANS- MISSION		REAR AXLE			FRONT AXLE		BRAKES				C-A Dimensions (Min. Std. W. B.)	Side Rail Dimensions	Type				
			Minimum	Maximum		No. of Cylinders	Stroke	Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings	Governor Standard	Forward Speeds	Make and Model	Gear and Type	Drive & Torque	Gear Ratio	Range in High	Make and Model	Location	Type	Operation	Lining	Drum	Drum	Material	Hand Location							
1	FWD—Cont'd																																		
2	(D) ZUD		150	182	41370	6-4	4.5	429.16	600/200	2000	7-3	17	Y Own B	5 Own ZU	5 Own ZU	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9			
3	(D) MTC		150	182	41370	6-4	4.5	429.16	600/200	2000	7-3	17	Y Own B	5 Own ZU	5 Own ZU	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
4	(D) M100		150	180	41600	6-4	4.5	429.16	600/200	2000	7-3	17	Y Own B	5 Own ZU	5 Own ZU	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9		
5	(D) M100		150	180	41600	6-4	4.5	429.16	600/200	2000	7-3	17	Y Own B	5 Own ZU	5 Own ZU	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
6	Marmon-Herr		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
7	(C) R-4		158	186	45331	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
8	(C) L-1		114	122	6500	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
9	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
11	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
12	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
13	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
14	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
15	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
16	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
17	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
18	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
19	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
20	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
21	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
22	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
23	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
24	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
25	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
26	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
27	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
28	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
29	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
30	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
31	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
32	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
33	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
34	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
35	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
36	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
37	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
38	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
39	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
40	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
41	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
42	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
43	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford	4 Ford	4 Ford	2F	H 6.5	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
44	(C) R-4		134	184	41007	8-4	4.5	239.6	4180/100	3800	3-1	24	N Ford																						

(Turn to Page 90. Please!)

Why a double-insulated* battery

LASTS LONGER



WITH FIBERGLAS†

Battery Retainer Mats, the power producing material is held on the positive plates . . . battery life is lengthened.



WITHOUT FIBERGLAS

Retainer Mats, the power producing material drops off the positive plate, falls to bottom, and builds up there until it shorts the battery.



You get more battery mileage per dollar when you standardize on batteries that are "double-insulated" with Fiberglas Retainer Mats. That's why battery manufacturers offer them in their heavy-duty line of truck and auto batteries. That's why more and more operators have switched completely to batteries "double-insulated" with Fiberglas Retainer Mats.

For longer, better service, get batteries that are "double-insulated" with retainer mats made by

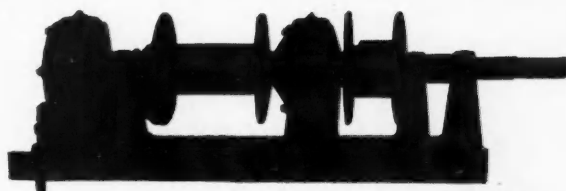
OWENS-CORNING
FIBERGLAS

†FIBERGLAS is the trade-mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with glass fibers.

952
 65
 C4X30 (coe) 4R
 (Turn to Page 92, Please)
 125
 192
 30000
 8400-7.50/20
 9.00/20-10/Chev.
 6-3-33
 125-16
 6-192
 93-3100 4-St. Chev
 Y/Chev.
 12/Chev.
 H9F R. -6.17/Chev.
 C61HV
 797
 830/Co TIX
 69
 944x33 1/2
 C



*with a TIME-**SAVING** Braden Winch...*



**BRADEN
DOUBLE DRUM MODEL
M9-12A6KES**

In Florida, where palm tree transplanting is an every day job, Braden Winches do the hard work. Tall, awkwardly balanced palm trees are easily and quickly up-rooted loaded on trucks, and planted again when time-saving Braden Winches are used on the nurseryman's truck.

Whether you move trees, tanks, heavy oil equipment or machinery, there's a Braden Winch for the job. See your nearest Braden distributor today.



BRADEN WINCH COMPANY

P. O. Box 547, Broken Arrow, Oklahoma



Line Number	MAKE AND MODEL	Chassis List Price	WHEEL-BASE		Gross Vehicle Weight for Normal Service	Chassis Weight (See definition)	TIRE SIZES		ENGINE DETAILS										TRANSMISSION		REAR AXLE				FRONT AXLE	BRAKES					FRAME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
			Minimum Standard	Maximum Standard			Standard Rear	Maximum Authorized Tire Size (Duesse unused)	Make and Model	No. of Cylinders, Bore and Stroke	Displacement	Comp. Ratio	Torque lb. ft.	Max. Brake H.P. at R.P.M.	Number and Diameter of Main Bearings	Governor Standard	Make and Model	Forward Speeds	Make and Model	Gear and Type	Drive & Torque	Gear Ratio	Range in High	Make and Model		SERVICE				C-A Dimensions (Min. Std. W. B.)			Side Rail Dimensions	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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1	Ward La Fr. DIT	180	220	39500	10.00/20	11.00/20	Cum T6427	6-4 1/2 x 5 1/2	427	340/152-2600	425/168-2400	Fu T4334	15Tum SD3010P	2F	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

For Key to References and Abbreviations See Page 79

how S. S. UNITED STATES makes 48,000 cu. ft. of refrigeration space airtight

This huge passenger liner is assured of airtight refrigeration by the *special, patented construction* of the weatherstripping used on refrigerator doors . . . INNER-SEAL*.

INNER-SEAL's made of *live sponge rubber*, which forms a perfectly tight, yet resilient, seal. Slam INNER-SEAL, it bounces back to shape. Does not mat. Will not crack. The *woven spring-wire flange* is so flexible it fits corners like a glove. Final protection is afforded by its waterproof neoprene coating which resists sub-zero or tropic temperatures, grease, oil, sunlight and abrasion.

From giant installations like the *S. S. United States* to a wide variety of industrial uses like refrigerated and other trucks, INNER-SEAL has no counterpart.

FREE samples . . . data on sizes, shapes, colors, scores of uses.

*Also used on gangway doors of this completely air-conditioned ship.

INNER-SEAL

WEATHERSTRIPPING

STAYS LIVELIER LONGER... SAVES MORE FUEL

BRIDGEPORT FABRICS, INC., BRIDGEPORT 1, CONN.



STROBOSCOPE OF "JUMP TEST" PROVES INNER-SEAL SEALS TIGHTER, LASTS LONGER!

Springy live rubber is the reason. Action-stopping stroboscopic photos prove it. Both ends of a strip were pressed together, then released . . . resulting in the lively spring action you see.



S. S. United States
... largest ship ever built in the U. S., third largest in the world. Built at Newport News Shipbuilding and Dry Dock Co., Newport News, Va. Launched June 23, 1951. Length overall . . . 990 ft, gross tonnage . . . 51,500, total cargo capacity . . . 148,000 cu. ft.

INNER-SEAL weatherstripping on the cab door of this Crosley Pick-Up Truck seals out dirt, moisture, heat, cold, lessens vibrational noises.

Save on Fuel and Maintenance, too, Convert to **PHILGAS***



SMOOTH - POWERED, LOW-COST FUEL. Philgas propane fuel . . . a Phillips Petroleum Company product . . . is 100 octane plus! Burns with steady, sustained power. Saves you money on long or short trip hauling . . . up to 1¢ per mile according to recent reports from fleet owners. Take advantage of today's low prices for Philgas. What you save on fuel can soon pay the cost of conversion!

LOW MAINTENANCE COSTS. Exceptionally clean burning propane gives you more miles between overhauls . . . up to twice the mileage, or more! No cylinder wall washing. Long ring life. Low cylinder wear.

NO SPILLING, NO WASTE. No losses from overflow and evaporation when filling the tank! Philgas filling systems are completely enclosed and automatic. Philgas is safe and easy to use. No exhaust smoke or smelly odor.

LUBRICATION. Phillips 66 Heavy Duty Motor Oil is highly recommended to give you full advantage of savings made possible by Philgas.

WRITE FOR FACTS. Philgas brings you all these advantages at low cost per mile compared to gasoline or diesel fuel. Conversion costs are low. Payout time is short. Our years of experience can save you time and expense in converting to Philgas. Ask to have a qualified Phillips engineer call to see you. No obligation.

*Philgas is the Phillips Petroleum Company brand name for its high quality butane, propane, LP-Gas or bottled gas.



PHILLIPS PETROLEUM COMPANY

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INDIANAPOLIS, IND.—1112 North Pennsylvania St. • KANSAS CITY, MO.—500 West 39th St. • MILWAUKEE, WIS.—Jones Island
MINNEAPOLIS, MINN.—212 Sixth St. South • NEW YORK, N. Y.—80 Broadway • OMAHA, NEB.—WOW Building
RALEIGH, N. C.—16 W. Martin St. • ST. LOUIS, MO.—4251 Lindell Boulevard • TULSA, OKLA.—1310 North Peoria • WICHITA, KAN.—501 KFH Building

Alaska Fleet Opens Frozen Road

Continued from Page 53

300 in. a year, followed always by gale-force winds up to 100 mph at temperatures down to -50 deg F, closed the pass to traffic soon after Nov. 1 every year—until Alaska Freight Lines, Inc., stepped in.

Previously, this trucking company had been delivering 1300 tons of cargo monthly into Fairbanks, but trucking costs had been high. All cargo had to

be shipped by rail to Dawson Creek, almost 1500 miles from company headquarters in Seattle, then trucked another 1500 miles by a fleet of 30 Kenworth tractors and semi-trailers with capacities of 17 to 20 tons.

Alfred J. Ghezzi, Jr., president of Alaska Freight Lines, Inc., figured there should be an easier way, and decided the Valdez-Fairbanks route was it.

The Alaska Road Commission told him it didn't have the funds to keep the pass open, so Ghezzi decided to do the job himself. The line received no help except adequate freight from the Army and a refund of a portion of its gas tax from the Territory to help defray the expense.

In return for Ghezzi's agreement to maintain the 17 toughest miles of highway within the pass, the Commission agreed to maintain 73 miles of the remaining 100 which were closed. It agreed, further, to supply four tractors with bulldozers for use in the pass. The freight line donated \$30,000 for this phase of the work. Balance of the 500-mile route offers only the usual snow-removal problems.

Equipment Cost \$180,000

ALASKA FREIGHT LINES, INC., spent some \$180,000 for equipment and, at a cost of \$25,000 a month, was able to keep the pass open. It figures this money as well spent because, as compared with the Alcan highway, mileage per one-way trip was reduced from 1500 miles to 500. In addition, the ratio of cargo carried over the new route, as compared with the old, is about three to one. When the Alaska Road Commission took over the job last winter, it purchased Alaska Freight Lines' snow-removal equipment, at depreciated cost on open bid.

The company's equipment comprised some of the largest snow-removal machinery yet constructed for highway use. It included four Kenworth off-highway trucks, having a gross weight of 106,000 lb each, when equipped with 20-yd dump bodies, and an International K-12 truck with 8-yd dump body. The Kenworths are used for heavy duty, the Internationals—equipped with a reversible front blade—for clean-up and light plow work. The tractors are used beyond the road shoulders to flatten the windrows of snow left by plowing operations.

Two of the Kenworths are equipped with specially-designed V-blades manufactured by the Pacific Car & Foundry Co., at Renton, Wash., while the other two were converted to rotary plows. The first two also have two wings on each side, thus enabling the trucks to clean a 20-ft swath. With ballast loaded in the dump bodies, the trucks are able to buck through many feet of tightly packed drifts.

On the other two trucks, GMC Twin diesel power units, developing nearly 400 hp, are mounted behind the cabs to provide power for standard rotary plows.

Transmissions, differentials and gear (TURN TO PAGE 98, PLEASE)

TWICE THE SERVICE MEANS HALF THE COST

Pyrene Vehicle Type Fire Extinguishers give TWICE—or more—the service life of ordinary vaporizing liquid extinguishers!

Practically every piece of equipment that goes into your trucks and buses is made specifically for their requirements.

Your fire extinguishers should be, too!

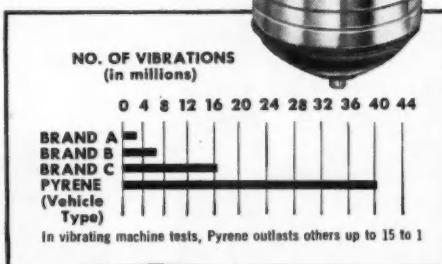
Vibration takes a heavy toll of ordinary vaporizing liquid extinguishers. But Pyrene* 1 qt. and 1½ qt. Vehicle Type Extinguishers—and only Pyrenes—are built with special construction safeguards to prevent the effects of vibration. A special vibration dampener holds the pump mechanism firmly in place, protecting it against both vertical and horizontal vibration. And tough brass linings guard the valve housings in every spot where wear could occur.

Result? In vibrating machine tests, a Pyrene Vehicle Type Extinguisher outlasted three other major brands by more than 2 to 1... the ratio going as high as 15 to 1. See chart for details.

Lower price doesn't pay when you get half the life. Buy on facts... buy Pyrene!

*T.M. Reg. U.S. Pat. Off.

Here's the proof—results of vibrating machine tests



Pyrene
REG. U.S. PAT. OFF.
FIRE
EXTINGUISHERS

PYRENE MANUFACTURING COMPANY

589 Belmont Avenue • Newark 8, New Jersey

AFFILIATED WITH C-O-TWO FIRE EQUIPMENT CO.

IF you will read carefully the written statement of H. P. Welch Co.—reproduced on the preceding page—we believe you will be impressed with the importance of the savings made by using Gates *specially engineered* TRUCK BELTS in trucks and buses.

We have similar statements from many big operators, a few of whose names are also published on the preceding page. These users are located from Coast to Coast and are selected *geographically* so that there will almost surely be one near you whom you know and can conveniently ask. Any one of them will tell you that Gates TRUCK BELTS are cutting his belt costs by *fully one-half*!

A 50% saving in belt costs is, of course, very much worth while. But there is still another saving that is *far greater than this*.

Dollars Saved by Reducing Road Delays are Biggest Dividend of All!

Every user of Gates TRUCK BELTS will tell you that the much longer service life of these *specially engineered* belts gives still greater savings by cutting down road delays for belt servicing—thus increasing the priceless *operating time* of their units which is, after all, the only thing that pays them (or you) a profit.

We believe that you will want to consult some of these users. That is why we publish a few of their names. Write them or talk with them. Let their experience convince you that you, too, can profit by using the belt that is *specially engineered* for Trucks and Buses—the Gates TRUCK BELT.

Specially Engineered for TRUCKS and BUSES

In addition to having a tough, multiple-ply cover of more than double durability, Gates TRUCK Belts are built with RAYON Cords. You know how greatly RAYON Cords increase the life of truck TIRES. Why not get the advantage of 50% to 80% longer wear in your truck BELTS by insisting on the Belt that is *specially engineered* for TRUCKS and BUSES—the GATES TRUCK BELT.

Look for this "T"*

Look for the letter "T" on the belt itself—as well as on the label of every belt you buy for truck service. "T" means that the belt has been specially engineered for TRUCKS and BUSES. You can be sure of getting the belt designed for this more demanding service only by seeing to it that you are delivered belts which bear this letter "T".

*Reg. U. S. Pat. Off.

The World's Largest Maker of V-Belts

Gates Belt Jobbers in Every Distributing Center Can Supply You Promptly.

CHICAGO, ILLINOIS
National City Lines

KANSAS CITY, MO.
Kansas City Police Dept.

SPOKANE, WASH.
United Truck Lines, Inc.

AKRON, OHIO
Yankee Lines Inc.

RIDGEWOOD, N. Y.
Hegeman Farms Corp.

PORTLAND, OREGON
Damascus Milk Co.

LOS ANGELES, CALIF.
Asbury Transportation Co.

OMAHA, NEBRASKA
Overland Greyhound Lines

CINCINNATI, OHIO
Cincinnati Street Railway

LOUISVILLE, KY.
Ewing - Von Allmen Dairy Co.

DETROIT, MICHIGAN
Red Star Transit Co. Inc.

DENVER, COLORADO
Pacific Intermountain Express (PIE)

Alaska Fleet...

Continued from Page 94

cases of trucks and equipment are filled with Keystone lubricants that stay fluid at sub-zero temperatures, and alcohol always is carried for use as an additive to prevent freezing in the air lines. Stove oil is used as fuel for diesel engines. Most pieces of equipment carry a kerosene-burning flame thrower for use in warming cold engines and gear cases. Emergency rations, heavy cloth-

ing, a sleeping bag and an axe also are standard equipment on the trucks.

Safeguarding Travel Hazards

FOUR cabins along the first 100-mile section where snow removal is necessary are connected by a single-wire, grounded circuit, party-line telephone circuit with the Commission's district engineer in Valdez. Each camp reports to the district engineer each morning, and several times a day and during the night when the weather is threatening. If conditions are not safe for travel,

road blocks are erected at strategic points—close to roadhouses where travelers may secure accommodations—and traffic held up until the road is cleared.

Visibility is always a problem at the pass, because of the absence of trees or other dark objects which could give drivers and operators landmarks from which to judge distances. Since the terrain is a blank expanse of unrelieved white, it is not possible to tell embankments from cuts on dull days and during snowstorms. Men sometimes walk off the road and fall down 20-ft slopes in the belief they still are on the road. Visibility has been improved at least 50 per cent by use of sunglasses.

As visibility is best during periods of bright sun light or at night in the illumination of headlights, much of the snow removal work and travel by truckers is done at night.

Thompson Pass is not the only difficult section of the highway. In another section, subsurface draining, flowing on top of the permanently-frozen strata below the surface creates another hazard. The water, unable to go down into the frozen earth, is forced to the surface during low temperatures and then flows across the road. Sometimes it freezes there and forms a highway "glacier"; sometimes it forms a pool with only a surface layer of ice. Should a truck break through this ice, the driver often finds himself "high-centered" and stuck.

The Commission usually is able to prevent this situation by building fences of canvas or other material alongside the road or by thawing out the culvert usually nearby. Sometimes a small ditch is built across the gravel highway to carry away the water.

Although Alaska Freight Lines, Inc., prefers the Valdez-Fairbanks route, it has not and does not intend to abandon the Alcan highway, using two Kenworths there to haul freight destined for Fairbanks from the Midwest and East.

END

Please Resume Reading Page 54

Greyhound Offers to Buy American

The Greyhound Corp. has made an offer to purchase American Buslines. The acquisition, which is subject to approval by the Interstate Commerce Commission, is on the basis of an exchange of securities. Greyhound proposes to issue one share of preferred stock for each share of American preferred and also for each \$100 par value of American debentures and, in addition, nine-tenths of a share of Greyhound common stock for each share of American common.



Look at the Servis Recorder chart above—note those spaces or "gaps" in the travel line marked with arrows. Each one of those gaps indicates *idle time*—the truck wasn't running then. Were these delays justified, unavoidable?—or, was someone to blame? You want to **KNOW** whether your trucks are losing valuable time now and then on their routes during the day—how much and how often.



The only accurate way to keep tab on all those delays, even down to 10-minute periods, is to attach a little **SERVIS RECORDER**; the truck automatically *acts as its own Time-Keeper!* Write for full information. The Service Recorder Co., 1375 Euclid Avenue, Cleveland 15, Ohio.

The Servis Recorder

Shows Busy and Idle Time... All Day

Convex Mirrors

Continued from Page 59

A plane mirror has a rather limited field of vision. Thus a 6-in. round mirror has only a 5 ft field of vision for a driver sitting in his semi and looking at the back of the truck. It's a narrow field and if some vehicle approaches outside this narrow field, it will not be seen. This, possibly, is a contributing factor in those accidents where the driver swings from a right to a left lane or attempts a left turn and reports, "I looked in my mirror and saw nothing coming."

Where a larger field of vision than to be had with a plane mirror is wanted, the convex mirror offers a solution. The field of vision of a convex mirror varies depending on the radius of curvature. Thus, a 6-in. convex mirror with a 115-in. radius of curvature has a field about twice that of a 6-in. plane mirror. While a 6-in. convex mirror with a radius of curvature of 30 in. has a field of vision of 188 in. which would require an 18½-in. plane mirror to duplicate.

A convex mirror of 30-in. radius permits the driver to see to the rear during the right turn up to the point where the tractor has swung around 30 deg. The mirror makes it possible for the driver to see his right rear trailer wheel, to be much more aware of what is to the rear or to see a pedestrian step off the curb at a point where he would be hit by the trailer wheel if the driver did not act to prevent such an accident.

Convex mirrors have their disadvantages. The first being that though they increase the field of vision, they also distort the apparent distance of objects in direct proportion to the increase in field of vision, i.e., double the field of vision and objects appear about double the distance away. Secondly, it is difficult to manufacture convex mirrors accurately and cheaply. Price rules out any expensive process such as grinding and polishing. In consequence, there is quite some variation in the curvature of convex mirrors. As produced at present, the curvature should be measured to make certain that it falls within reasonable limits before the mirrors are put into use.

The advantages of the rectangular mirror over a round one are quite easy to visualize by cutting a 5½-in. circle out of heavy paper and masking over a rectangular mirror. It will be seen that the rounded corners cut off much desirable view to the rear. The 8½ in. or 9 in. length left hand mirror gives an undistorted view to the rear and takes in the trailer wheel. The 5½ in. or 6 in.

width is necessary to give a view as wide as would be had with a 5½ in. or 6 in. round mirror. Limiting the width to 4 in. does not produce a satisfactory mirror. Where these have been installed, one will see some carried vertically, some carried horizontally and occasionally a compromise 45 deg position. Plane rectangular mirrors on 96 in. width conventional trucks seem to be first choice for left and right cab mounting.

On cab-over-engine trucks and on smaller 80 in. width units, one plane left hand mirror is usual equipment.

However, with the introduction of mirrors with very slight curvature (110 in. in. radius) many prefer such a mirror to a plane one. Its field of vision is about double that of a plane mirror and distortion is small and not objectionable. It is quite likely that such mirrors will come into general use on delivery wagons, small trucks and cars. The same general thinking applies to using 110 in. radius mirrors on the right fender of any small truck in place of a plane right cab mirror.

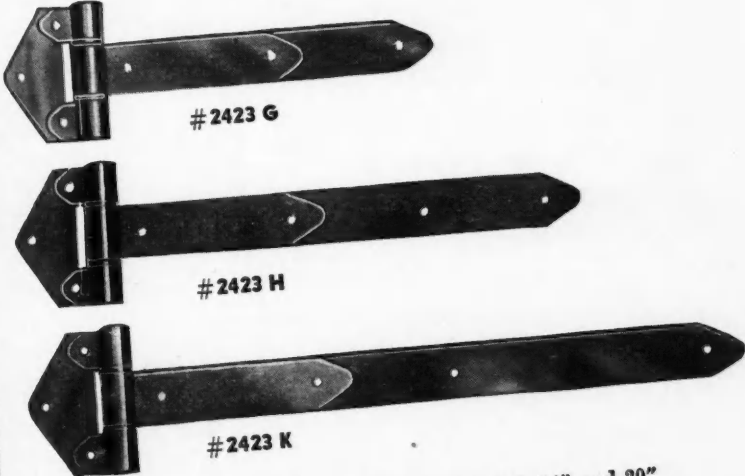
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Please Resume Reading Page 60

"Cleveland"

ALL STEEL HINGES

Laminated construction of 3/16th inch thick steel. Hardened bearings and ½" diameter knurled pin, designed to give greatest strength and resistance to wear at the hinging point—an exclusive feature.



#2423 G

#2423 H

#2423 K

Available in four strap lengths—8", 12", 16" and 20".
Width 1¾"—Butt plate 4½".

Send for new Catalog — 24



THE CLEVELAND HARDWARE and FORGING COMPANY

3264 East 79th St. Cleveland 4, Ohio



Idaho is Road Test Site

Continued from Page 51

be constructed to permit comparison of the load carrying characteristics of several different thicknesses of subgrades—from approximately 4 in. to about 16 in.

Over the various thicknesses of subgrades, there will be about a 4-in. base of granular material, with a 2-in. top layer of asphaltic concrete.

The test road will be laid out into two loops, each providing for continuous round trips. This differs from the Maryland Road test in that, at La Plata, the test vehicles ran back and forth over the same segment of test lanes. However, as in La Plata, the round trip of each vehicle will be about a mile.

This *Clayton*
Dynamometer
will show you
why we bogged
down on
Big Pine Grade

Your drivers know when power lags.

Only on the Clayton Chassis

Dynamometer can your maintenance superintendent accurately and quickly duplicate the driving condition in your shop...to find the same power lag.

There is a reason why fleet owners who use the Clayton Chassis

Dynamometer win the fleet maintenance awards year after year. To find out why...and how...mail the coupon for an authoritative engineer's report reprinted from the S. A. E. Journal.



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Send us the complete story on modern truck fleet maintenance

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FIRM _____

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Test to Begin in August

CONSTRUCTION of the test road will start early this spring. Actual running of the test vehicles will begin some time in August, according to present plans.

There will be two 10-hour shifts daily, six days a week, for a total of 12 months. The test will be conducted until stopped by winter weather. Then it will be resumed, in the spring of 1953, and continued for about three months.

The test, will be conducted under the supervision of the Highway Research Board, as was the Maryland Road Test. Cooperating in the test are 10 states of the western group affiliated with AASHO (WASHO), the Bureau of Public Roads, the petroleum industry, and truck manufacturers of the Automobile Manufacturers Assn. Cooperation of the latter group is based upon its ability to do so, contingent upon sudden, serious changes in the current mobilization program.

Represented on the active committee are members cooperating with the highway departments of the American Trucking Assns., National Highway Users Conference, and others. In addition, there will be ex-officio observers from such interested groups as the Asphalt Institute.

Comprehensive Test Plans

PLANS also are advancing for the much discussed comprehensive road test, which would combine in one test two types of road surfaces, various types of road bases and subgrades, and a wider spread of axle loadings. The test has been advocated by a group that believes that many factors can be resolved in a single test. However, there has been some opposition on the basis that such a test would be too costly—from the standpoint of time, equipment, vehicles, and manpower.

Nevertheless, under the assumption that some of the originally proposed regional tests could be cancelled, that the monies for those tests could be pooled, that sufficient support could be gained to make additional funds available, plans for the comprehensive test have been progressing.

Briefly, objectives of the proponents of the comprehensive test are establishment of testing conditions to prove or disprove certain highway construction information now available; provide comparative data simultaneously on rigid and flexible paving; provide more complete information on road bases and subgrades; provide scientific information on pavement behavior subjected to eight different axle loadings; show the

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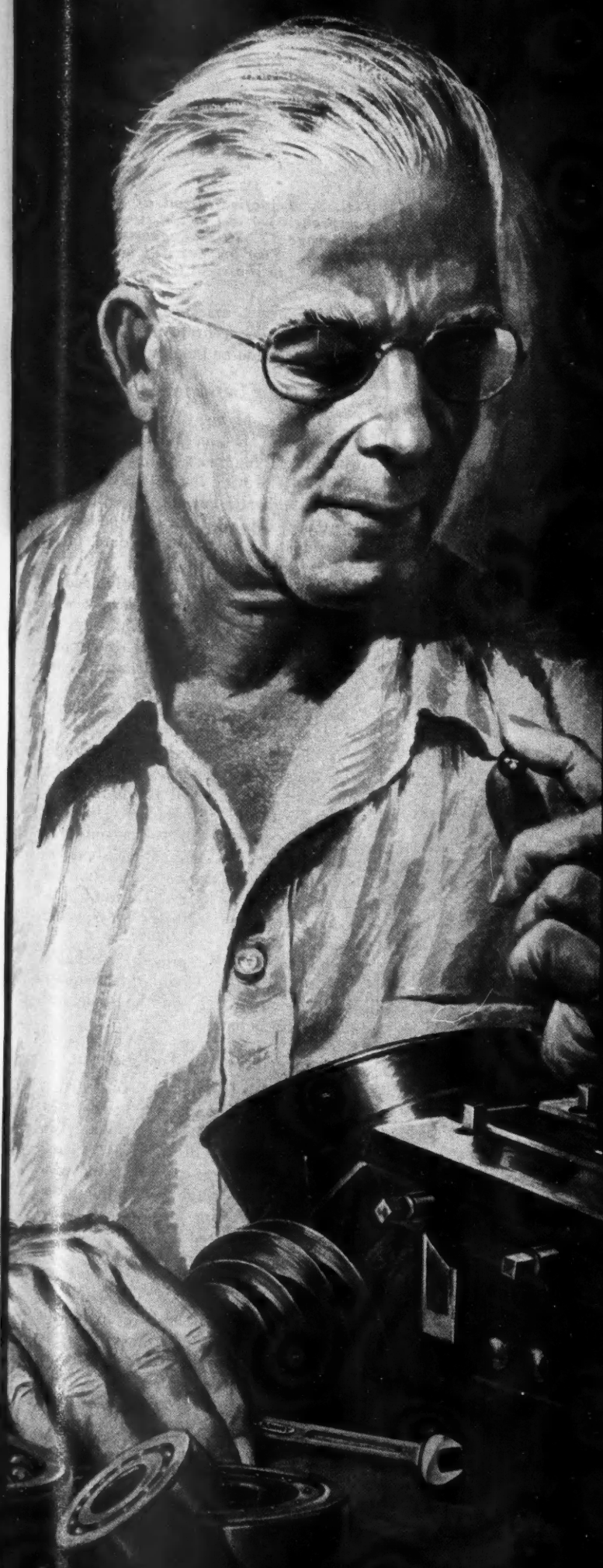
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PRIDE in PERFECTION

It is an inborn trait. The real mechanic thinks precisely. His materials and equipment must be flawless. He makes no compromise with quality in tools. He applauds perfection in the work of other artisans.

Pride in perfection. That is the reason Bonney wrenches are America's finest — unmatched for lightness, strength, balance, and precision.

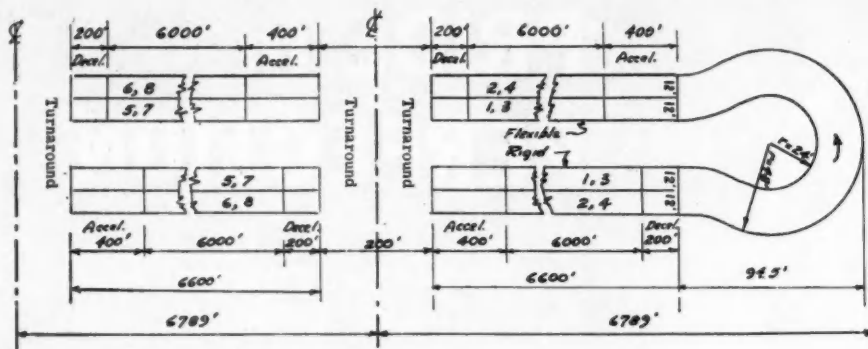
Bonney wrenches are the pride of the men who make them ... the pride of the men who use them.

BONNEY FORGE & TOOL WORKS
Allentown, Pennsylvania



**BONNEY
TOOLS**

Pride in perfection is exemplified in the precision ball and roller bearings produced by leading bearings manufacturers such as SKF, Timken, Fafnir, BCA, and Norma-Hoffmann.



Road Test Site

Continued from Page 102

FIG. 3. Tentative layout of proposed comprehensive test road. Round trips to average 13,680 ft; suggested speed, 30 mph. Two bridges will be located in the rigid lanes.

effect of heavy axle loads on bridge spans; provide accurate data on highway construction and maintenance costs.

Cost Data Important to Users

FROM the highway users' point of view, the last-mentioned objective probably is the most important. Not only will it provide the cost of building suitable highways but, also, it will show how these costs relate to axle loads and subsequent maintenance. To date, little such information is available.

It also should establish greatly needed information on how much more it will cost to build and maintain highways to support the heavy axle loadings urged upon the various state legislatures and highway officials.

From the highway research engineers' point of view, the test will provide a great deal of new information on highway construction and behavior. Most important of all, it will provide instrumentation techniques and facts that can be put to practical use—not only for highway construction and maintenance but, also, to help engineers calculate in advance the most practical and economical highway facilities for specific needs.

Further, it will provide workable data for PAR (Project Adequate Roads), particularly for the structural and safety factors.

Comprehensive Test Layout

FIRST draft details for construction and layout of the comprehensive test road are shown rather completely in the accompanying illustrations. Fig. 2 shows the tentative proposal for construction of both rigid and flexible pavement sections. Fig. 3 shows the tentative test road layout.

As can be seen, present plans for the suggested comprehensive test road include four consecutive four-lane divided loops placed end to end with identical sections in each, except for the bridges. The bridges are to be located in the deceleration lanes of the rigid pavement side, in the center and at one end of the test road.

END

Please Resume Reading Page 52



LOWER

MAINTENANCE COSTS are yours with

GUNITE

cast-steel wheels

for heavy-duty trucks and trailers

Enjoy lower cost per mile and the superior strength and safety of Gunite Cast-Steel Wheel assemblies on your highway hauling equipment. Lower cost per mile is due to minimum unsprung weight which reduces wheel maintenance and tire wear... and to superior performance of Gunite Brake Drums.

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Lowers Operating Costs



Steps up crew efficiency!

Powers-American bodies do their job faster, more efficiently, and at lower cost, because they're "job-engineered." Each model incorporates design features *proved* by utilities over many years of operation, and is field-tested under actual working conditions by utility engineers *before* production! "*Job Engineered*" means long life and trouble-free service for you, whatever your utility body needs may be. Look to *Powers-American* as your 1 source for all types of utility bodies and equipment.



REVOLVING AERIAL LADDER

Can be extended to any length, spotted in forty positions throughout a full 360° revolution, and inclined at any angle from 30° to 75°. Easily operated by one man. Safe enough to support 4 times normal working load. Available in sizes having ground-to-platform heights from 23' 6" to 32' 3".

*"The Accepted Standard
with Utilities Everywhere"*

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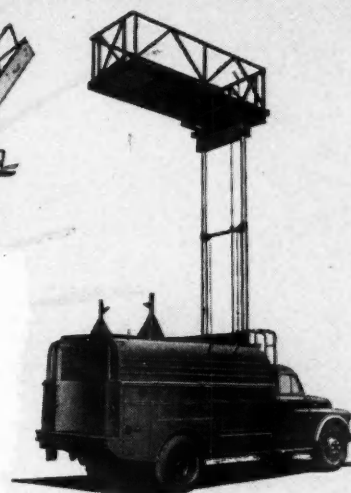


American

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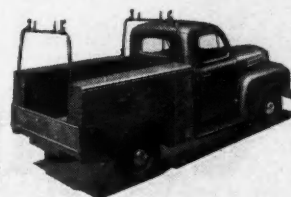
PUBLIC UTILITY BODIES AND EQUIPMENT

McCABE-POWERS AUTO BODY COMPANY
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HYDRAULIC TOWER

Available in models having ground-to-platform heights of 21', 25', and 30', for installation on chassis having 1½ ton capacity or more.



GENERAL SERVICE BODY

½, ¾, 1, and 1½ ton models. Can be equipped to meet any operating requirement.



FORESTRY BODY

For tree trimming and clearing. Also available with winch and derrick for construction work.



LIGHT CONSTRUCTION BODY (350)

Fold-over derrick can handle poles up to 40' in length. Underfloor winch leaves loading area clear.

There are many styles of *Powers-American* Bodies not shown here. Write for descriptive catalog today.



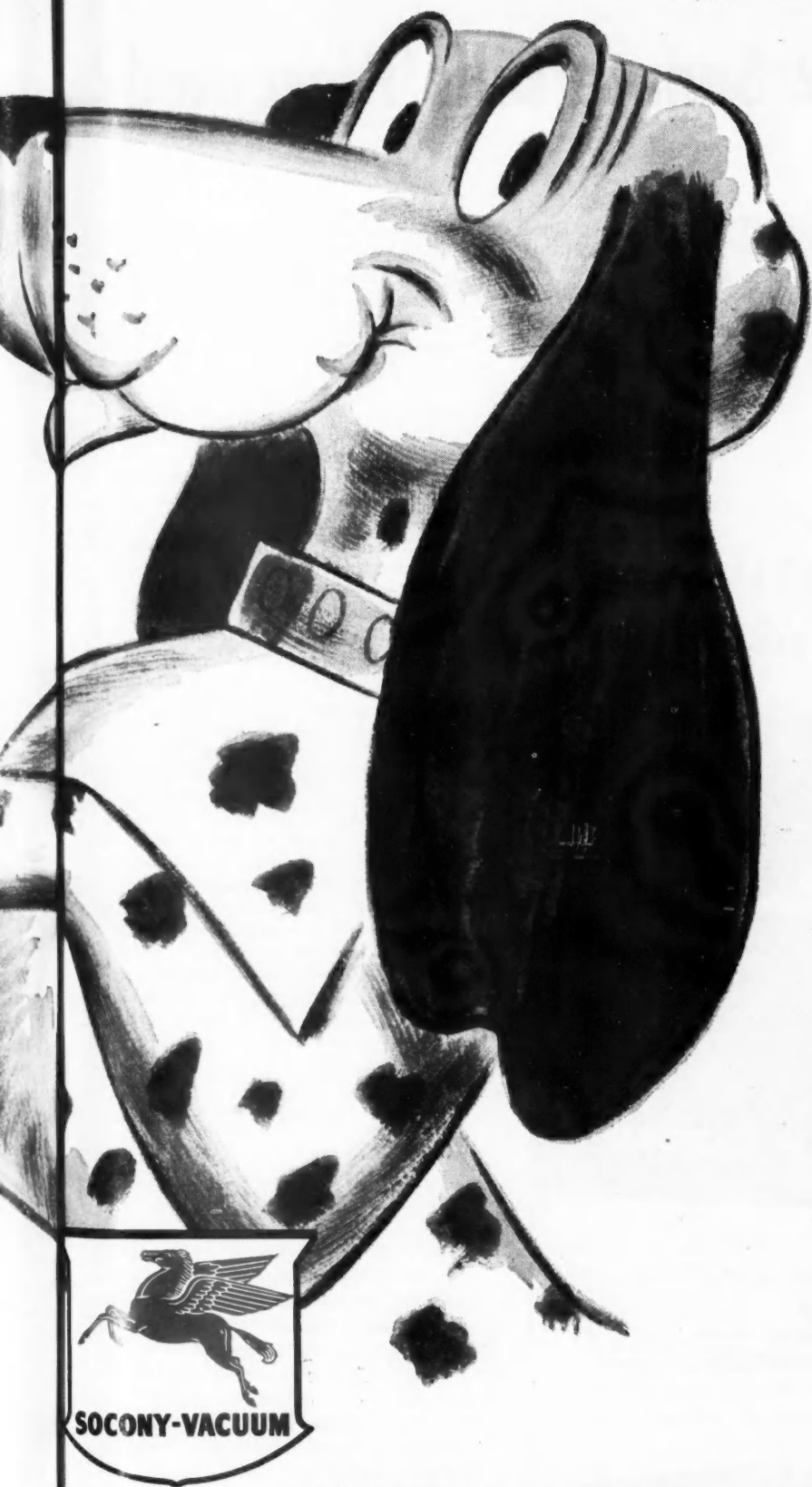
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help keep your engines!**

Only a *clean* engine can give you the day-in, day-out dependability, power, and economy you must have for profitable operation. And you *assure* these results—both from Diesel and heavy-duty gasoline engines—when you use famous *Delvac Oils*!

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Call your Socony-Vacuum representative *today* for Delvac Oils. They are recommended or approved by 125 engine and equipment builders!



Here's Practical Help For Fleet Operators...

Socony-Vacuum gives you...

- Help on maintenance problems.
- Individual, tested lubrication schedules.
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- One source of supply—available everywhere.
- Simplified inventory—with...

1. **DELVAC OILS**—for all gasoline and automotive-Diesel engines.
2. **MOBILUBE GX**—multi-purpose gear lubricant for all enclosed gears—manually operated transmissions, transfer cases and drive axles.
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Correct Lubrication for Fleet Operators

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC.
MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION

19 New Senate Bills Presented;

Believing the readers will want specific reference to *all* of the 19 bills recently introduced by Senator Edwin C. Johnson (see page 23), the following summary contains a brief outline of each, with observations showing which type of carrier is involved in each case. All are now pend-

ing before the U. S. Senate but no indication was available at press time as to the probability of passage:

S. 2348 would amend procedures within ICC to permit individual commissioners or board of employees to act initially on routine matters.

S. 2349 would extend the "long and short haul" clause of the Interstate Commerce Act, now applicable only to rail and water carriers, to motor carriers.

S. 2350 (concerns railroads only) would permit higher rates for leased cars to help alleviate shortages.

S. 2351 would require ICC to more thoroughly probe adverse effect on *all* types of service when issuing new certificates of public convenience.

S. 2352 would establish annual license fee (undetermined amount) for services rendered by ICC.

S. 2353 (concerns railroads only) would require records and reports concerning locomotives similar to those now in effect for car services.

S. 2354 (concerns railroads only) would require consent of stockholders in stock modification plans.

S. 2355 (sponsored by Senators Johnson & Bricker) would make contracts between carriers and the government firm and binding—no longer subject to renegotiations as at present.

S. 2356 (concerns railroads only) would authorize ICC to require various types of signaling and communications equipment.

S. 2357 would sharply restrict current far-reaching exemptions for farm and fish products; would generally limit such exemptions to unprocessed foods.

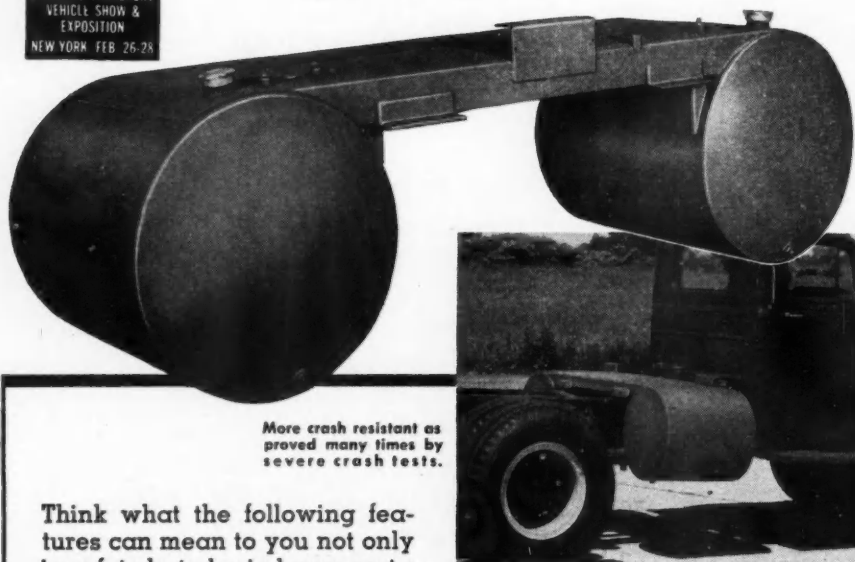
S. 2358 would restrict operation of irregular route common carriers; specifically prohibits the rendering of *regular* service by such carriers.

"Cylsad"

TRADE-MARK

the truly safe **SADDLE TANK**
for your trucks

SEE OUR EXHIBIT AT
NATIONAL TRANSPORT
VEHICLE SHOW &
EXPOSITION
NEW YORK FEB. 26-28



More crash resistant as
proved many times by
severe crash tests.

Think what the following features can mean to you not only in safety but also in lower costs:

1. Ball check safety valve.
2. Increased fusible element area for additional safety.
3. Hose connection mounting bracket.
4. An evenly crowned, extended, safety tread top.
5. Furnished complete with diesel connections for cross-over line, gauge ports, and return line connection.
6. Also with spring and pad mountings for isolating the tank from excessive vibration.
7. Double checked for leaks with the famous G. E. Electronic Tester.
8. Available at prices competitive with the ordinary, old-fashioned saddle tank.

In addition to these features the "Cylsad" meets proposed specifications and tests recommended to I.C.C. governing the manufacture of automotive fuel tanks. May we send you complete information and prices?

THE LINTERN CORPORATION
29-2 RIVERSIDE DRIVE • BEREA, OHIO

Washington

Office of Price Stabilization is planning to delegate to field offices the authority to process rate adjustment applications. Contract carrier spokesmen do not oppose the move.

... Interest rates on loans to truckers and other commercial borrowers are likely to be higher this year because of pressure on banks from the Federal Reserve System.

... The trend in union wage agreements with drivers is toward one-year contracts and more fringe benefits. Scale for drivers rose 9 cents an hour last year to an average of \$1.69; for helpers, 8 cents to \$1.42 an hour.

... Steel and aluminum registration tags will be allowed only to new owners in 1953; holders of tags issued for 1952 will get over clips or tabs.

Some of Vital Importance to the Fleetman

S. 2359 would permit the ICC to suspend, change or revoke certificates for wilful failure to comply with the Interstate Commerce Act.

S. 2360 would increase the amount of securities not subject to ICC approval issued by common carriers from the present \$500,000 to \$1,500,000 and increase the exemption for two-year notes from \$100,000 to \$500,000.

S. 2361 would allow the ICC to re-examine the status of existing contract carriers and to change status if necessary. It also contains provisions which would permit contract carriers to more effectively compete with private carriers, and would permit the issuance of "restrictive permits" covering services to a specified shipper only.

S. 2362 would restrict private carriers from transporting any property for compensation other than that within the scope of its primary business, and would also prohibit the leasing of vehicles owned by private carriers to other types of carriers.

S. 2363 (sponsored by Senators Johnson and Bricker) would establish maximum dimension and weights for all vehicles subject to ICC control. Specific limitations are as follows: width, 96 in.; height, 12 ft. 6 in.; length for single truck, 35 ft.; bus, 40 ft.; tractor semi-trailer, 50 ft.; other combinations (limited to two), 60 ft. Axle load is limited to 18,000 lb. except in states which permit a higher load.

S. 2364 (concerns water carriers only) would permit ICC to revoke or suspend certificates under certain conditions.

S. 2365 (sponsored by Senators Johnson and Bricker) would authorize the Bureau of Public Roads to "conduct an investigation to determine the portion and type of

public road taxes which should be assessed against various types and weights by motor carriers."

S. 2366 is a technical amendment to section 203 (b) of the Interstate Commerce Act; adds an exception of section 226 as well as 204.

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First in value — First in sales **SOL-SPEEDI-DRI**

Accept no substitutes! Pound for pound, dollar for dollar, SOL-SPEEDI-DRI gives you more for your money, all factors considered. That's why it's America's sales leader in the oil and grease absorbent field. Selected raw materials, careful processing, and laboratory controls keep quality always uniform. Send the coupon today for free sample and descriptive literature about how to "dry clean" your floors with SOL-SPEEDI-DRI.

Warehouse stocks maintained in principal cities of the United States and Canada.

Inquirers in New York, New England, and New Jersey should write to Speedi-Dri Corp. Elsewhere in U.S. to Waverly Petroleum Products Co., 1724 Chestnut St., Philadelphia 3, Pa. In Canada, G. H. Wood & Company Ltd., Toronto. Branchesthroughout Canada.

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Fill out the coupon and mail today for free sample and literature.



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CCJ 2-52



Winds

... Attempt will be made to get Congress to broaden present social security coverage and to increase benefits.

... Chairmen of Congressional tax committees have turned their shoulders on Administration's new tax proposals.

... Interstate Commerce Commission has approved the Midwest Conference agreement, ignoring the opposition of the Justice Department which believes that such agreements have a look of price-fixing about them.

... Meanwhile, on the Office of Price Stabilization front, the industry advisory committee representing contract carriers has presented solid opposition to any changes in SR-39 and SR-40 which now permits rate adjustments applied for to go into effect after 30 days if OPS has taken no action.

first Specify TANDEMS

then Specify

HENDRICKSON TANDEM



Leading operators today specify rigs equipped with Hendrickson Tandem Units.

THE EQUALIZER BEAM reduces road irregularities.

THE BALL AND SOCKET JOINTS provide flexibility and prevent distortion.

THE TORQUE ROD reduces the tendency of the axles to turn due to starting and stopping inertia.

First specify **TANDEMS** . . . then specify **HENDRICKSON TANDEM**!

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DOUBLE DRIVE SIX-WHEELER



TRAILING AXLE SIX-WHEELER



TANDEM AXLE SEMI



SIX-WHEEL FULL TRAILER



PORTABLE SPECIAL MACHINERY



SIX-WHEEL CRANE CARRIER

Fleetman's Library

Power Take-off and universal joints are listed in a catalog now available from Neapco Products Inc., Pottstown, Pa., through local jobbers. The catalog gives complete specifications, sizes, etc. of the Neapco line including complete joints, parts, complete shaft assemblies, end yokes, slip yokes, and interchange and replacement parts.

Scrap for Steel Mills and Foundries for Defense, is the title of a booklet being distributed by the National Production Authority. It outlines the need for and progress in a national campaign for recirculation of dormant scrap now being conducted by NPA. Your copy may be obtained from regional and district offices of the Department of Commerce, or from its national office, Washington 25, D. C.

Cargo Heater, now being made by Luminator Inc., Chicago, is described in a bulletin (No. 550) distributed by the company.

Electrode holders and connectors made by Tweco Products Co., Boston, at Mosley St., Wichita, Kans., are listed and pictured in catalog No. 8 now available.

Chromated Caulk called "Rub-Bub" tells its story in a brochure currently released by Moore Chemical Co., Mantua, Ohio.

Fork Truck Model "FS" made by the Baker Industrial Truck division of Baker-Raulang Co., 1250 W. 80th St., Cleveland, Ohio, is introduced in a catalog complete with pages of specifications, applications, and truck attachments.

Welders equipment such as head-shields, goggles, cleaning tools, electrode holders, cables, clamps, clothing and accessories are all listed in a catalog now available from Robart Brothers Co., Box EW 164, Troy, Ohio.

South Bend Lathe Works, South Bend, Ind., illustrates and describes their entire line of machine tools, attachments and accessories in "Pigmy Catalogs" measuring 2½ in. by 1½ in. They open accordion style to reveal 28 tiny pages.

Clark Equipment Company, Buchanan, Mich., has published a booklet telling "How the Products of Clark Serve Industry."

Air compressors, car washers, air hose reels and accessories made by Champion Pneumatic Machinery Co., Princeton, Ill., are introduced in a 24-page catalog now available. It also contains charts and tables that show how to select the proper compressor size, fittings, equipment combinations, air receiver data, air flow tables and wiring sizes for various motor ratings.

"Saved us upwards of 37%"

says T. C. BIEBERICH of BEBRICK COMPANY

FORT WORTH — Harlingen — McAllen, TEXAS



Red-I-Cut
WATERPROOF
PAPER

Flexbac[®]
METHOD



READ MR. BIEBERICH'S LETTER...

HERE'S ANOTHER TIP...

●BECAUSE it eliminates 85% of the tedious hand sanding usually required in autobody refinishing, the FLEXBAC Method, developed by CARBORUNDUM, is scoring a phenomenal acceptance by cost-conscious operators everywhere. We urge you to investigate.

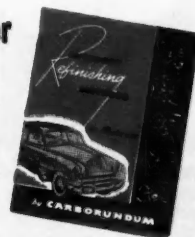
"It goes without saying, when painting thirty cars a day on a production line or in a single car shop, cost control is vital in showing a profit.

"I have spent twenty-five years in the automotive repaint business and five years in the production line oven baked enamel field. During those years I have used numerous types of coated abrasives, and have painted over twelve thousand automobiles.

"After exhaustive and thorough tests, side by side against competitive coated abrasives, we found RED-I-CUT Waterproof Paper saved us upwards of 37%. We are using RED-I-CUT Paper and Waterproof Discs exclusively in all three of our production line oven baked enamel shops."

See your CARBORUNDUM jobber

...for supplies of the equipment you need: extra sharp RED-I-CUT Waterproof Discs, featuring powerful adhesion of abrasive to backing, and high resistance to pulping and tearing; the sensational FLEXBAC Rubber Pad and its supporting D10 Sander Pad.



Send for
your FREE
copy

of the "How-to"
Manual on Auto-
body Refinishing.
Write Department
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You can do it better, faster, at lower cost—with products by

CARBORUNDUM

TRADE MARK

"Carborundum," "Flexbac" and "Red-I-Cut" are trademarks of The Carborundum Company, Niagara Falls, N. Y.

FLEET NOTES



Truckaway Corp., Pontiac, Mich., recently awarded bonuses, pins and certificates to 103 drivers who held from one to 15 years driving without an accident.

Greyvan Lines, Inc., reports that Charles E. Ames is their new manager at the Syracuse office.

Inland Motor Freight Lines, Salt Lake City, Utah, recently distributed \$21,000 in employee safety bonuses, including 92 per cent of their over-the-road drivers.

Needham's Motor Service, Inc., Philadelphia, Pa., has appointed Ernest

S. Forest as special traffic assistant in charge of sales promotion and employee and public relations.

Gordons Transports, Inc., St. Louis, Mo., has completed a freight terminal building at 3555 Scott Ave., to be managed by J. A. Dirnberger.

Middle Atlantic Transportation, Inc., Detroit, has a new sales representative, William J. Burkhard.

Hartford Transportation Co., Inc., has announced that Lawrence G. Malloy has been engaged as a district sales manager for New York, New Jersey and Pennsylvania.

Strickland Transportation Co., Dallas, Tex., promoted R. W. Conninsworth to the position of sales manager. He has been on the sales force for several months.

Dan Dugan Oil Transport Co., Sioux Falls, S. D., received a letter complimenting a driver who stopped in a snowstorm to help a motorist fix a flat. The motorist: F. H. Ryan, division trainmaster of the CMSPP railroad.

Johnson Motor Lines, Inc., Charlotte, N. C., recently held a sales and operational meeting. Staff members from 11 states attended.

Willett Trucking Co., Chicago, reports that a license has been granted by the Federal Communications Commission to the Willett Radio Corp., a subsidiary to operate a common carrier service for mobile communications in the Chicago area. A channel has been assigned for the operation and the service will be available for all who desire it, with tariffs furnished on request.

Interstate Motor Freight System has inaugurated a public relations department with Wayne J. Sheldon as director.

Bekins Van and Storage Co., Los Angeles, Calif., announces a combined accident-free record of 211 years by 22 of their drivers. There were 88 drivers honored recently at a Sunday breakfast safety celebration.

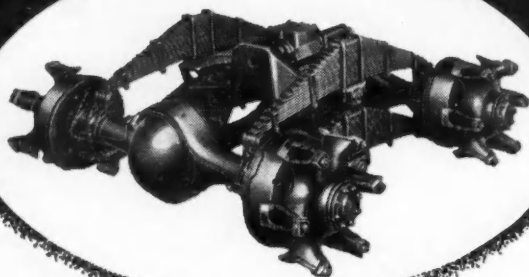
Dixie Highway Express, Meridian, Miss., held their annual safety banquet recently, to which 200 persons were invited. They joined with the L. L. Majure Transport Co. for the occasion which was to honor the over-the-road drivers of both organizations. The banquet proceedings were highlighted by a presentation of the American Trucking Associations national tank truck safety award to Majure for 1951. The fleet has won the distinction for the past three years. Dixie Highway received two safety plaques for winning the award in the national truck safety contest also sponsored by ATA.

Transportation Expert

O MY BOSS HAS IMPORTED AN EXPERT. HE'S DEvised A NEW PLAN THAT IS FINE: SIMPLY MAKE FORTY COPIES OF LADINGS—CHECK OFF ONE AND TEAR UP THIRTY-NINE!

—Omer Henry

POWER • PAYLOAD • PERFORMANCE



with GRICO 2 AXLE DRIVE

Now you can take your medium duty trucks and do a heavy duty job with them by installing the famous Grico 2 Axle Drive Unit. There's a unit for YOUR truck.

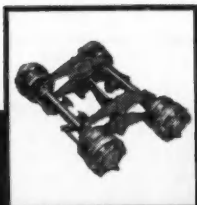
Check the advantages of the Grico over any other unit and you'll become convinced that for the job you have to do . . . you'll pick GRICO.

DESIGNED RIGHT . . . MADE RIGHT . . . PRICED RIGHT . . .

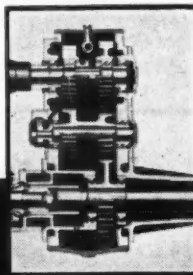
Look into the Grico plan now and see for yourself how this "master of the field" can lend new and faster profits to your operation.



IF YOU NEED . . .
that dependable third axle . . . with a load capacity of ten tons, twelve tons or fifteen tons . . . Check the favorite Grico Superflex. Catalog material and specifications upon request.



IF YOU NEED . . .
that dual-axle unit for your trailers . . . with plenty of capacity . . . then look into the rugged Grico Dual Axle Unit. Catalog material and specifications upon request.



Here you see one of the **GREATEST** Gear Transfer Cases ever developed.

Designed to provide greater power to both driving rear axles and give greater gear selection for 8 to 10 forward speeds (with two reverse speeds).

GRICO TWO AXLE DRIVE COMPANY

19842 WEST EIGHT MILE ROAD
DETROIT 19, MICHIGAN



**Maintenance Costs Cut...
because Engines Run Cleaner on
CITIES SERVICE C-800 OIL**

"GRATIFYING CLEAN CONDITIONS" replaced the usual "evils" of stop-and-go engine operation, writes still another major fleet owner who switched to Cities Service C-800 oils. "In addition, the cylinder and shaft diameters have shown a minimum of wear."

This operator tested—checked—compared—for two years before he wrote his praise. It's added evidence that these oils can give you more work OUT of your trucks and less work ON them. With these Heavy Duty Cities Service C-800 oils... plus our technical help on your special problems... you can switch to lower costs. Write for full details to CITIES SERVICE OIL COMPANY, Dept. B2, Sixty Wall Tower, New York City 5. Or call the Cities Service office nearest you.

CITIES  SERVICE

Accidents Are Reviewed, Studied

Continued from Page 63

for the company an improved record.

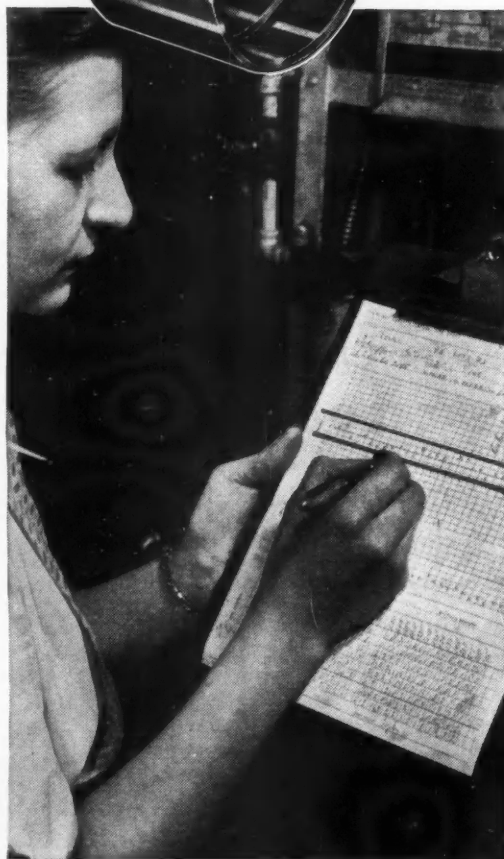
We consider it fortunate that the company occupies, as our Chicago headquarters, a single large and fairly new building, which includes administrative office, garage, and maintenance shop. This centrally-located headquarters facility has made possible the early-morning mingling of nearly all drivers; the

exception being the comparatively few on night duty. It also affords opportunity for personal contacts by the drivers with our operations executives.

The Accident Review Board with meetings usually held every Wednesday morning promptly at 8 o'clock, is able to take advantage of this centralized situation.

MONMOUTH

first with the finest



These red lines embrace more bearing value

THE operators on this Monmouth Bearing production line literally live between these red lines! Bearings being broached by these machines must be accurate in crush height within plus or minus .0005 of an inch or the part is rejected and the machine is stopped for adjustment to produce up to requirements.

The results of the check are recorded between the red lines. The reason for this exacting care is obvious. Finished bearings delivered over the counter in a MONMOUTH package must fit exactly the part for which they were engineered. The name Monmouth stands for the highest standard of precision craftsmanship and is insurance that these bearings will deliver the maximum value and performance to the user. **SPECIFY MONMOUTH!**



COB FIRSTS: The development of continuous strip casting, 1929—thinwall babbitt lined steel-backed bushings, 1931—continuous casting of copper lead on steel strip, 1934—tri-metal bearings, 1938—Micro Bearings, 1939—Clevite 77, 1944—and others which have helped to revolutionize the lined bearing industry.

Program Activities

IT IS our plan to keep each Board meeting brief and snappy, yet thoroughly informal for the seven or eight company personnel who usually will attend. This early-morning hour is regular starting time for the day drivers; and the Board meetings thus are always held fully on company time.

It is the duty of the Director of Safety to plan and direct each session. He is able, for any good reason, to shift a meeting to some other morning of the week than Wednesday. The carry-through of a meeting involves the following activities.

1. Preliminary accident investigation. Following the report of a new accident, the Director of Safety assembles all needed basic information which may involve a company driver. Then a personal talk with the involved driver usually follows. After this, there are contacts with the insurance adjuster and others; if the accident seems to include controversial features which concern driver chargeability.

However, at no time—either before or during the Board meeting—will the name of the involved driver be posted or in any manner revealed to other company drivers. This is done to get unbiased and unprejudiced verdicts from the Review Board members.

2. Selection of juror drivers. Previous to the hour for the Board meeting, the Safety Director will button-hole three of the regulars from among those assembled for the start of their day's work. These three will become the jurors to judge whether an unnamed fellow driver shall be charged as responsible for the accident up for review.

Jury Selection Considerations

WHEN the Safety Director is selecting these three drivers, he naturally will keep in mind several possible related factors.

First, he, of course, will not choose a driver directly or indirectly involved in the accident—or accidents—up for consideration.

Second, he will be sufficiently informed and considerate enough of the company's trucking schedule for the day, not to choose a driver who happens to be under any sort of rush-work pressure.

Third, he will plan to select at least one or two drivers, among the three, who either has had or tends toward having an accident of the type up for Board consideration. Thus, the session might pass on to such a driver highly effective personal warnings.

Fourth, the Safety Director will keep (TURN TO PAGE 116, PLEASE)

You get more help from HASTINGS

Turn to Hastings for the most help. You'll get it because Hastings devotes all its energies *exclusively to the replacement market.*

HASTINGS STEEL-VENT: The oil control ring engineered exclusively for replacement, and for *all* replacement service—use it for re-bore, re-ring and re-sleeve jobs. Chrome-faced for heavy duty service—both two and three chrome rings per piston—the most complete chrome line on the market.

HASTINGS MICRO-KNURLING: Re-sizes worn and collapsed pistons—brings them back to size. Micro-knurling re-surfaces both old and new pistons—provides better lubrication, eliminates scuffing and scoring.

HASTINGS SERVICE INFORMATION: Rated tops in the industry by fleet maintenance men. Let these complete, practical, authoritative handbooks, engineering bulletins and installation instructions keep you up to date.

HASTINGS SERVICE TOOLS: Hastings engineers have created and developed many specialized service tools—available through your Hastings Jobber—to help you do better, faster and more efficient work.

◀ **SYMBOL** of the famous Tough-but-oh-so-Gentle ring: it's Tough on Oil-Pumping, Gentle on Cylinder Walls.



HASTINGS

STEEL-VENT PISTON RINGS

HASTINGS MANUFACTURING CO. • HASTINGS, MICH.

Hastings Ltd., Toronto

Piston Rings • Spark Plugs • Oil Filters • Casite • Drout

Accidents Are Reviewed

Continued from Page 114

in mind that one of the basic purposes in these weekly Board sessions is to so rotate the respective drivers who are selected; that at some time during the calendar year each and every Lasham Co. driver will have had the opportunity to serve at an Accident Review meeting.

An additional fourth company driver, who also might be considered a juror

and who naturally will attend all meetings, is the Steward who represents the local Chicago Union of which the Lasham Co. drivers are members. His opinions are desired, and he will feel free to speak out in the interest of developing all-pertinent facts relating to the unnamed company driver whose accident is being reviewed. Also, it can be stated that, in general, our company-union relationships always have been harmonious.

3. Participation by other persons. It is considered very important to have, at each Board meeting, two or three of the

top company executives who are officially most concerned with the purchase and shop maintenance of the company motor vehicles being handled by our drivers.

The three operations executives who most often do attend the weekly Board sessions are Frank L. Monaco, superintendent of maintenance; Louis J. Kratsky, superintendent of operations; and William S. Gibson, manager. An additional person who often attends is the Chicago representative of the Lasham Co. insurance carrier.

4. Action by the Board. As stated, it is the business of the safety director to carry through all details in the scheduling of a Board meeting; and, as presiding chairman, to keep the session snappy and brief. The Board meetings are habitually held in a small quiet room in the general office section of the large building.

This room, otherwise, is mostly used by the director of safety and personnel for his private interviews with driver applicants. It is also used by him to carry through his simplified five-point psychophysical instrument tests which are preliminary to the employment of any new driver; and these tests are also used for rechecks on employed drivers.

In this room, there is available a large table on which may be placed a standard board diagram of street intersections. This is supplemented by the use of small vehicle models, spotted to illustrate the exact traffic setting of any company vehicle accident being described.

How Decision is Reached

USUALLY, the basic facts relating to the chargeability of an accident being considered will soon become quite evident. Thus, the general Board opinion will be unanimous. However, it is assumed that the formal opinion will be in the hands of three driver jurors. If one of them should be slow to decide and an argument should develop, then each person present might be polled as to his opinion.

It can be stated, as the result from all of the Lasham Co. Accident Review Board meetings held during the last several years, that there never has been a time when the entire group did not finally agree unanimously on the verdict. This even included a recent occasion when, through a little personal mistake in driver identity, a driver whose accident was up for review had been invited in as a juror. During the session, only the safety director had known that this was the driver directly involved in the accident before the Board.

(TURN TO PAGE 119, PLEASE)

FAST, SAFE DEPENDABLE

PORTABLE. HYDRAULIC JACKS

- Scientific Design
- Precision Construction
- Rugged Performance

Seven Models—3, 5, 8, 12, 20, 30, and 50 tons capacity



Self-Locking Screw
With Integral Cap



Extra-Strength
Cylinder and Ram



Break-Proof Base
And Pump Barrel

● For the finest in rugged, fast-acting portable hydraulic jacks, standardize on Ajax. Whether you need a tool box truck or bus jack . . . a heavier duty unit for shop service . . . or a 30 or 50-ton brute for power bending and straightening—Ajax has a model to handle your requirements. In times like these, you'll find it more important than ever to standardize with one source for long jack service—for economical service—for dependable lifting equipment that will outlive the "emergency." See your Ajax Jobber.



AJAX AUTO PARTS CO.
RACINE, WISCONSIN



"THE COVERAGE LINE" OF FINEST QUALITY JACKS

Accidents Are Reviewed

Continued from Page 116

When it came time for him to vote, this driver was fair enough to state frankly, "Yes, the guy was guilty. He should know better than to be driving that way!"

This interesting result of such unanimous Board agreements on the chargeability of all recent driver accidents, also makes interesting the recent company statistics on the types of accidents decided to be most chargeable. We classify all company driver accidents in six main groups, plus "miscellaneous." For the driver accidents during 1950, the Review Board voted, as chargeable against the driver, the three accident groups of backing, hitting stationary subject, and right turn. Nearly equal, in rated percentage of chargeability, were intersection and left turn accidents.

It has been our plan, at all sessions of the Accident Review Board, to stress the well-known practices of defensive driving, as the one most essential driver need to head off all types of accident hazards. Such a special reminder has been the one chief message which the safety director has desired to leave with his driver jurors at the close of these sessions.

5. Followup activities. If there should develop, during a session of the Accident Review Board, any suggestion that an accident might have been promoted to any degree by an unfavorable mechanical feature in a company vehicle, or by any kind of neglect in its shop maintenance, a company official with either direct or indirect authority will be at hand to order the correction.

Mechanical Improvements

RECENTLY, our shop developed several new mechanical improvements planned to lessen driver fatigue, and, thus, to have positive value in accident prevention. One example is the special precaution taken to always assign a driver to a cab with seat fitted to his own height and reach. Another has been to fit all large tractor-trailers with a new shop-designed type of rear-end bumper, which also provides rigid ladder steps convenient for the driver to use.

A recent change made in our driver safety program is more in the psychological field. It has been to lessen the driver accident publicity on our bulletin boards. We now assume that such publicity often has too largely a negative effect on the drivers whom we most need to reach. Such a posting often will result in considerable jestful rib-

bing by fellow drivers; and rubbings-in of a type, which may put the accident driver in such an agitated mood, when starting again on his day's work, as easily to tend toward a repeated accident.

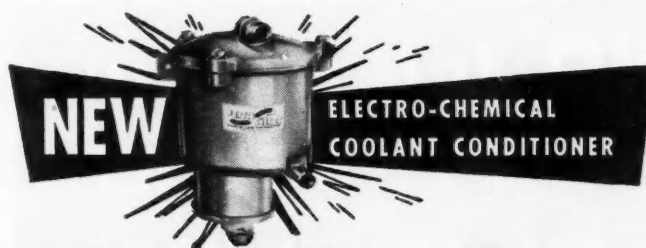
On the other hand, without the posting of his name, the fact that he has had an accident will gradually become known, and he will have learned his safety lesson in a milder manner. That is, if he is the type of driver who will attempt to, and can, correct his driving habits. If not of this type, and he has been proved to be indifferent to

safety suggestions, then other measures are taken.

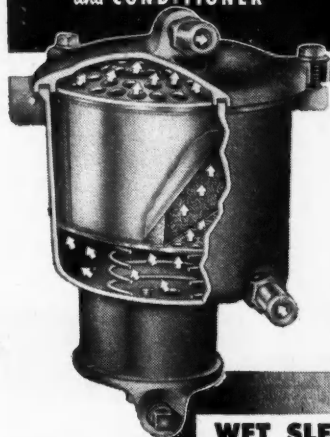
In contrast, it is now our company program to give more attention to the promotion, among our drivers, of the more positive factors in the team-work control of accident hazards.

From the positive viewpoint, our company still gives special attention to the play-up of our annual safety-award drivers. The company also is further developing plans to utilize more of the competitive group spirit in a plan to organize competing safety groups

(TURN TO NEXT PAGE, PLEASE)



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ELECTRO-CHEMICAL
Perry
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5-way
PREVENTATIVE MAINTENANCE FOR
cooling system
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The Perry Filter is economical to buy, easy to install on any gasoline or diesel-powered engine. For the first time, best known methods are combined to protect the entire cooling system against (1) rusting (2) pitting (3) hardness deposits (4) acid or alkaline conditions and (5) insoluble impurities in the coolant.

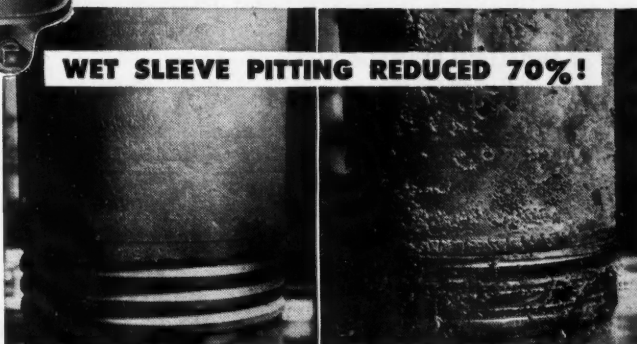
Only the Perry Filter provides electro-chemical protection from electrolytic destruction of metals in the cooling system.

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WET SLEEVE PITTING REDUCED 70%!



Cylinder sleeve from engine having Perry Filter protection since original purchase

From same type engine—72 weeks with conventional inhibitors (soluble oil) only

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Accidents Are Reviewed

Continued from Page 119

among our drivers; of the type, for example, where the winning groups will be given a free get-together evening entertainment and dinner.

Army Experience Useful

DURING the year just previous to the start of our Accident Review Board (1946), our company had about 150 drivers, same as now. For that

year our driver turnover was about 150 per cent. Our driver accident rate also was abnormally high. At that time, although I worked my way up from the ranks, I was rather new at the job of director of safety and personnel. But I was able to draw on valuable military experience.

When in the Army, I first had considerable experience in supervising the basic training of Army recruits in the driving of Army trucks. Then service as a director of sports, especially in veteran rehabilitation, at a number of the large overseas bases in England,

France, and other sectors. One of the chief methods then employed in this program to help rehabilitate Army veterans, was to stimulate group teamwork in sports activities.

Hence, after my return in January, 1946, to Lasham Cartage Co. as director of safety and personnel, it seemed practicable also to apply the same Army teamwork principle in the promotion of group driver training in safety. One result has been the development of our present Accident Review Board plan just outlined, with drivers and management on the same team.

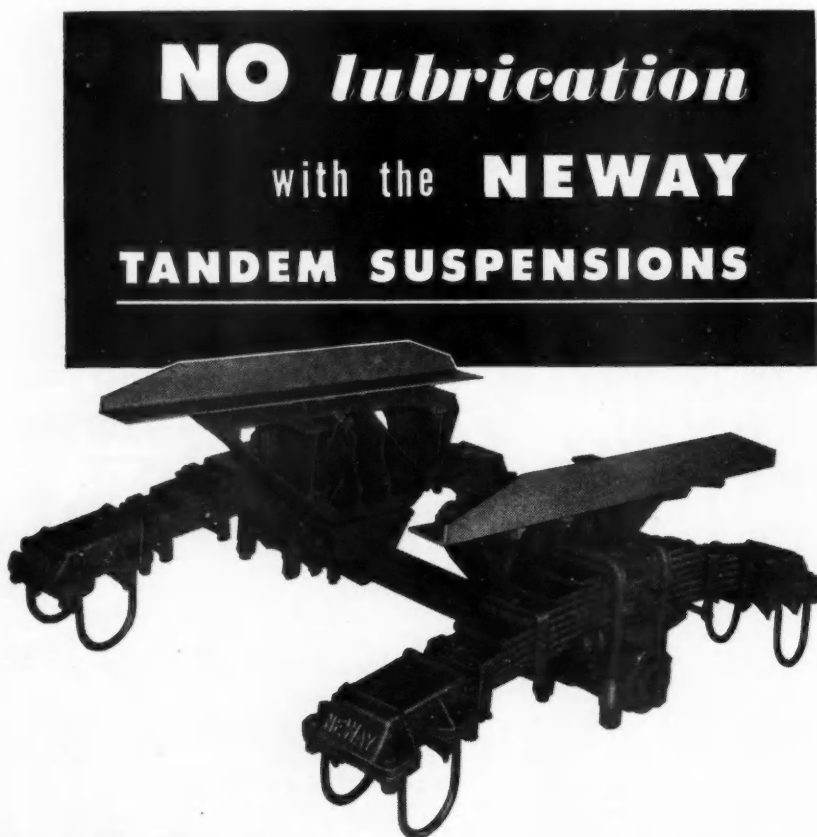
We now hope, after a driver has attended a session of the Accident Review Board meeting, that he will be convinced that the company management is definitely interested in his own personal driving safety, as well as in the general control of all accidents to improve the company operating stability, which also will improve his own job security.

As related to the general plan for our Accident Review Board, as developed through a period of five years by the Lasham Cartage Co., this plan has been given special attention by our parent company, the Universal Cartage Co. of New York.

Our Accident Review Board plan has been adopted either wholly or in part by other UC affiliated units.

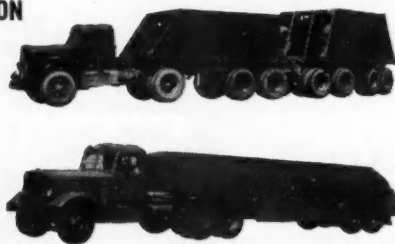
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Please Resume Reading Page 64



- EASY RIDE AND EASY HANDLING
- NO ROAD-HOPPING OR TIP-OVER ACTION
- NO RADIUS RODS TO ADJUST
- PERMANENT ALIGNMENT
- LOAD EQUALIZED BETWEEN AXLES
- THOROUGHLY ROAD TESTED AND PROVEN IN SERVICE

Operators report as many as 200,000 miles of service with no maintenance expense or down time. The Trunnion shaft is mounted on two rubber bushings, eliminating the necessity of lubrication at this point. Prove to yourself as others have, that NEWAY EQUIPMENT can cut your operating costs. See your NEWAY DEALER today. Send for Bulletin No. 62.



NEWAY Equipment Company

Muskegon, Michigan, and
201 S. E. Washington St., Portland, Oregon

ALSO MANUFACTURERS OF THIRD AXLES FOR TRUCKS AND TRACTORS

Tire Shipments Decline

Manufacturers' shipments of passenger casings, during November, decreased 14.04 per cent to 4,661,525 casings from 5,422,649 casings in October, according to the monthly report of The Rubber Manufacturers Association, Inc.

Shipments of truck and bus casings in November decreased 12.73 per cent to 1,419,784 casings from 1,626,944 casings in the previous month. Production decreased to 1,652,383 casings from 1,669,426 casings for the month before or a decrease of 1.02 per cent. Inventories totaled 1,465,456 casings, an increase of 22.29 per cent from the end of the previous month when 1,198,371 casings were in stock.

Controls worked out jointly by industry and government subjected rubber manufacturers in 1951 to the most severe restrictions in their peacetime history, but despite this the industry was able to meet all military and civilian requirements. In the process of keeping America working and traveling and the military machine rolling, the industry chewed up a near record 1,235,000 long tons of new rubber.

Spher-O-Honed

BOWER

ROLLER

BEARINGS

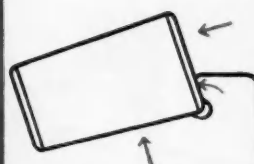
get 'em from your
FEDERAL-MOGUL
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SPHER — Stands for generated spherical roll-head and flange surfaces.



○ — Stands for the liberal oil groove.



HONED — Stands for durable races honed to micro-inch smoothness.

Spher-O-Honing means finest quality and precision in Bower roller bearings, just as Federal-Mogul means *service*—fast, accurate, dependable service!

Your Federal-Mogul jobber has complete stocks of Bower roller bearings for replacement in cars, trucks, trailers, buses and tractors. These bearings are *exactly* the same as famous Bower original equipment.

You can depend on Bower *quality* and Federal-Mogul *service*! Ask your Federal-Mogul jobber!

FEDERAL-MOGUL SERVICE, DETROIT 13, MICHIGAN
(DIVISION OF FEDERAL-MOGUL CORPORATION)





Trucks Tackle Tough Terrain

Uranium mining presents a major hauling problem

International's six-wheelers are now being called upon to transport uranium ore from the Colorado mountains to refining mills. They have earned the trucking industry an indispensable role in the United States' quest for the strategic mineral.

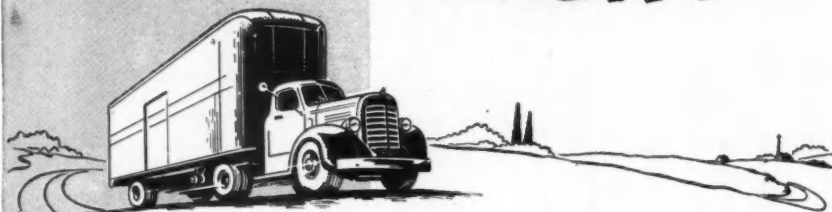
The trucks, equipped with dual-drive hypoid-gear axles, are bringing the ore down the Rockies' western slopes in an ever-increasing stream despite the fact that some of the western hemisphere's worst natural obstacles lie between mine and mill. Hauls of uranium ore from the wild, isolated areas, to seven mills in Colorado and Utah, average 70 miles through a formidable terrain of deserts, canyons, and mesas.

The hauling of uranium, a basic metal in the production of atomic energy, is performed by independent haulers using mostly International LF-190's and LF-210's and diesel-powered International western models, LFD-405's and LD-405's. They carry their payloads to the U. S. Vanadium Corporation's mills at Rifle and Uravan, the Vanadium Corporation of America's works at Durango and Naturita, Colo., and Hite, Utah, and the Atomic Energy Commission's own mill at Monticello.

Since the domestic exploration program was launched by the AEC in April 1948, the number of mines has grown from 16 to approximately 250. Where 100 men formerly worked on these diggings, there are now over 1,000, and scores of independent truck owners—operating from three to ten units each—are hauling tons of ore daily.

For every 16 miles the trucks travel, 15 miles are over native trails. The "roads" are simply tracks, wandering up and down great masses of talus and debris. Grades range from 15 to 30 per cent, altitudes are two and one-half miles above sea level, and in places there is scorching desert heat. Winter temperatures reach to 25 degrees below zero.

Keep'em ROLLING!

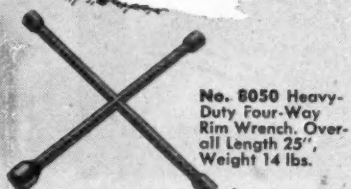


with
**Apco Mossberg
RIM WRENCHES**

Speed Up Truck Repair Time

IN-THE-SHOP

ON-THE-ROAD



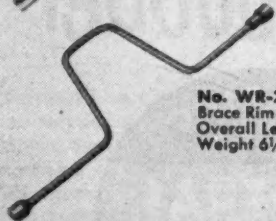
No. 8050 Heavy-Duty Four-Way Rim Wrench, Overall Length 25", Weight 14 lbs.



No. 2648 Two-Piece Rim Wrench Overall Length 18", Weight 5 lbs.



No. 7050 Two-Piece Rim Wrench Overall Length 20", Weight 4 1/2 lbs.



No. WR-2640 Brace Rim Wrench Overall Length 31", Weight 6 1/2 lbs.

Powerfully constructed by steel-forging, these popular wrenches with heavy-duty abilities are designed to fit all makes and models of trucks. Rim wrenches are available in three styles — (1) Two-Piece (2) Four-Way (3) Brace. Each wrench features extra deep sockets for firm grip on nuts, ample leverage requiring less effort to disengage nuts, extra long lengths for sufficient clearance with wire wheels, deep hubs.

Apco Mossberg's complete line of truck wrenches and handy service tools are recognized for superiority by repairmen in fleet shops from coast to coast. Ask your jobber or write today for catalog and prices.

APCO MOSSBERG CO.

187 LAMB STREET, ATTLEBORO, MASS.

SAE Annual Meeting

Continued from Page 58

Precision tolerances are naturally expected of the engine bearing. A commercial tolerance of plus or minus .005 is maintained on the length by most bearing manufacturers. The steel thickness or other backing is usually held at .005 unless there is a specific reason to hold it closer.

The wall tolerance is the important part, however, in maintaining the optimum bearing size and uniformity of cylindrical hold when a pair of bearings is assembled. Engine bearing manufacturers shoot at a total permissible variation in wall of .000025, which is about $\frac{1}{8}$ the size of a human hair.

Crankshafts, too, can influence bearing mileages. Slightly .000025, which is about $\frac{1}{8}$ the size of a human hair.

worn crankshafts, particularly crankpins, have a tendency to go out-of-round because most of the loading is on the underside of the throw. Measurement with micrometers makes this condition quite obvious, and it is up to the maintenance man to decide whether or not the particular shaft is usable or should be reconditioned or replaced. Such measurements should be taken in at least six places on all throws and preferably recorded in the determination of the shaft condition. Likewise, the main journals should be measured in the same manner.

As a salvage limit, we have suggested .002 as being the maximum out-of-roundness for crankpins and .003 for journals. Naturally, the closer to a round condition the better the bearing life expectancy.

The reuse of shafts with a ridge on the journal or the crankpin has taken a toll in unsatisfactory performance. The ridge in the shaft comes about because of wear between the shaft and the bearing and no wear in the area of a peripheral bearing groove. Strangely enough, the greatest aggravation of this type is caused by a bearing that has one half grooved and the other not.

The ridge, caused by the different wear rate, of only .0001 or less in height can cause havoc as far as the new replacement bearing insert is concerned. It is usually invisible but, when the shaft is reused in conjunction with a new bearing of uniform wall thickness, the ridge applies concentrated pressure over the central bearing area. The only possible cure for such a condition is to replace the crankshaft or have it reground.

Bearing dimensions must necessarily be set so that under no conditions of allowable dimensions can the oil clearance give interference or too tight a fit. Thus, when using such a bearing with a slightly worn shaft and a housing that is already on the large size, maximum allowable clearances can prevail which again is not as desirable as a lesser oil clearance.

The oil throw-off by any bearing is controlled by the bearing oil clearance in conjunction with the pump pressure. The oil throw-off is, to some degree, used to lubricate other moving parts: cylinder walls (pistons), valve guides (valves), cams (tappets).

Oil is a necessary evil; we all like it for its lubricating value for we know that the engine bearings cannot function without it; yet, it is too excellent a carrier of dirt—dirt in the form of cast iron, hard carbon, corundum, or steel.

When these particles are carried into the bearings, particularly in quantity, enough trouble ensues in short mileage. Smaller quantities of dirt cause other troubles, such as excessive shaft wear, to result in extreme dissatisfaction. Seventy-five per cent of bearing troubles can be attributed to dirt.

(TURN TO PAGE 126, PLEASE)

Wrong Idea

MIRACLE POWER TREATS THE ENGINE—NOT THE OIL!

Miracle Power is *not* a purge, *not* a detergent, *not* a chemical. Miracle Power is all lubricant—contains only colloidal synthetic graphite, completely suspended in a fine, light blending oil.

Used in oil and gas, Miracle Power places a breathlike protective graphite film on vital engine parts. This graphite film holds oil on engine parts longer—gives standby lubrication in the temporary absence of oil—prevents dry starting damage when you start up after long stops.

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CAUSED BY DRY STARTING

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Vehicle Selection

Harry O. Mathews of Armour and Co., in a paper entitled "Intelligent Selection of Vehicles for Fleet Use," outlined six important points which should be considered in purchasing practices by the fleet manager. Factors which affect the selection of passenger cars are:

1. The policy regarding the use of the cars which is in effect within a given company. This involves such things as garaging, provisions for personal use of car by the salesman, charges made for this use.

2. The maintenance policy which is in effect within a given company. If the maintenance is performed 100 per cent in company facilities, then the matter of tools, equipment, etc., for new makes or new models must be given careful consideration.

3. The trade-in policy in effect at any particular time. Some companies are now working on an annual trade-in basis; others are trading at some point before the first major overhaul is required, and some are still operating on the basis that only obsolescence shall be considered.

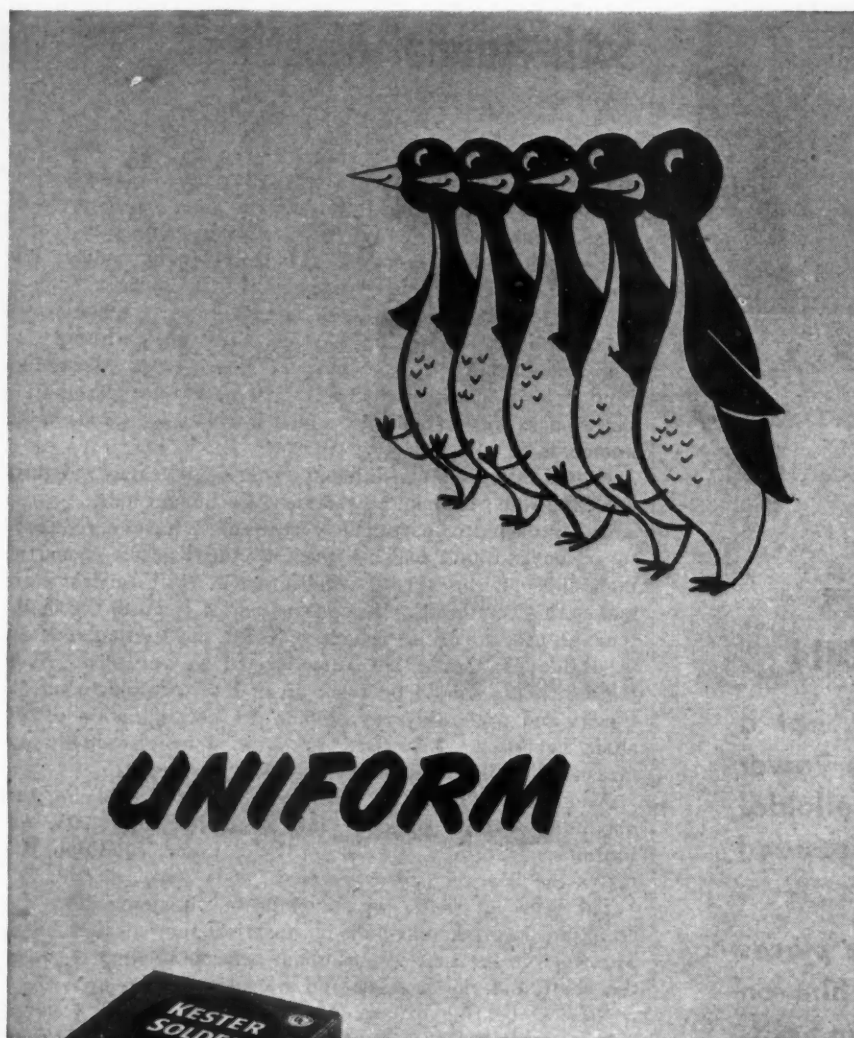
4. The operating conditions. Road conditions vary considerably and should be evaluated. If the car is for field personnel, a different vehicle may be needed. The type of personnel who use the cars might have some effect. Supervisory people may be entitled to a little better vehicle or perhaps some deluxe equipment.

5. The manufacturer's service has a definite effect on the choice of vehicles. Many dealers have no interest in fleet service. On the other hand there are dealers who distribute the so-called low-priced cars, who can be relied upon to provide good service.

6. The sales policy in effect by the manufacturer is another important factor, particularly during the years when allotments have been necessary. The fleetman should be sure that the distribution of the vehicle he is selecting will be adequate to meet his requirements.

The selection of light and medium duty truck equipment for fleet use introduces a few additional problems, as well as many of the same which have been considered. Since light and medium trucks are for the most part produced by passenger car manufacturers, it naturally follows that if advantage is to be taken of this method of manu-

(TURN TO PAGE 128, PLEASE)



KESTER ACID-CORE SOLDER

UNIFORM in Alloy-Structure
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*Right down the line, pound after pound, spool after spool,
Kester Acid-Core Solder alone gives you these features
of uniformity, so necessary in doing the job right . . . and profitably!*

*Better than 50 years of usage proves Kester's reliability.
That's practical experience . . . and you know
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*The "lower-priced and just-as-good solder"
is not for you . . . insist upon Kester
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KOLD-HOLD

*truck refrigeration
increases sales,
reduces spoilage
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The cost of "Hold-Over" Truck Refrigeration is so little that its advantages outweigh its cost . . . and it pays for itself in a hurry. It increases sales, reduces spoilage, permits longer runs and saves handling time . . . It does all this for less than the cost of ice alone.

Kold-Hold "Hold-Over" Truck Refrigeration increases sales because it keeps your truck contents cold, clean, dry and odorless, and improves their sales appeal. It reduces spoilage because the temperature of the truck can be predetermined and maintained throughout the longest day's hauls. And when the truck returns from its trip, undelivered loads can be left in the truck to save overtime handling.

"Hold-Over" Truck Plates reduce the cost of marketing perishable foods. Operating either off the existing plant cooling system or with condensing unit mounted on truck, they protect your products in transit . . . for less than 10 cents a day!

So why pay a premium for inadequate refrigeration when you can refrigerate your trucks at a profit, using "Hold-Over" Truck Plates. *Write for full details today.*

KOLD-HOLD

protects every step of the way



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Continued from Page 126

facturer, vehicles utilizing standard factory specifications, together with the options made available through production, should be used whenever possible.

Special bodies and equipment necessary in any particular fleet have a direct bearing on the selection of the chassis. Where bodies are expected to last two or three chasses and will there-

fore have to be transferred frequently, standard body mountings should be considered.

Many fleets have rigid specifications for truck equipment. When no compromise is permitted, this can only result in added original cost, which will be lost in resale of the vehicle. Consideration should be given to vehicle design and its relation to maintenance costs. Fast-wearing parts, for example, should be inexpensive to install as far as labor is concerned. Vehicles should be designed so they can be lubricated satisfactorily in an ordinary service sta-

tion. Investigation should be made to determine what special tools and equipment will be required.

Vehicles should be standardized insofar as possible, particularly within a given territory. Attention should be given to operating economy. The fleet operator should ask himself, "What would a 10 per cent fuel economy mean to me in my light-duty truck operation?"

Mr. Mathews went on to discuss problems in heavy-duty vehicle selection. This phase presents the most complicated problems, he said, for not only does the fleetman have to combine units manufactured by several companies, but he often has to over-buy to make certain that the vehicle will meet all of the operating requirements and provide the necessary economies at the same time. Provision must also be made for the modifications which may be required during the life of the vehicle to meet changes in operating requirements. The problem is further complicated by the manufacturer's ratings placed upon these vehicles. Ratings overlap. GVW as a rating does not necessarily guarantee performance, speed and ability of any make. Engine hp ratings are sometimes misleading since they are always shown with such accessories as fan, water pump, and minimum size generators. Displacement is not a satisfactory measure of engine output. Many of the same problems exist with the transmission, auxiliary transmission and rear axles.

There are really just three important factors to remember in selecting vehicles, Mr. Mathews, concluded:

1. The applicability of the vehicle to the service required.
2. The facilities provided by the manufacturer for the maintenance of the vehicle.
3. The utilization of the manufacturer's specifications and options whenever possible.

A combination of all three of these factors can only result in the best vehicles for each individual service requirement.

(TURN TO PAGE 130, PLEASE)



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Arc Welding
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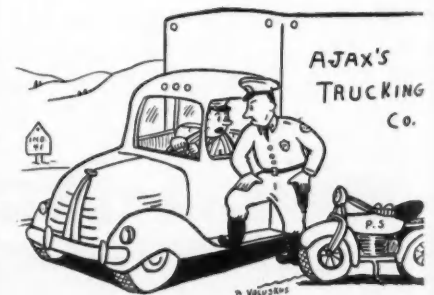
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"It's quite all right officer, I'm testing the general efficiency of various police departments in catching speeders."

"We would not consider the operation of an over-the-road unit without installing **Tachographs**"

THE TIME-TESTED RECORDING SPEEDOMETERS

says: G. H. Becker, Operating Manager

MURPHY

MOTOR FREIGHT

LINE, INC.

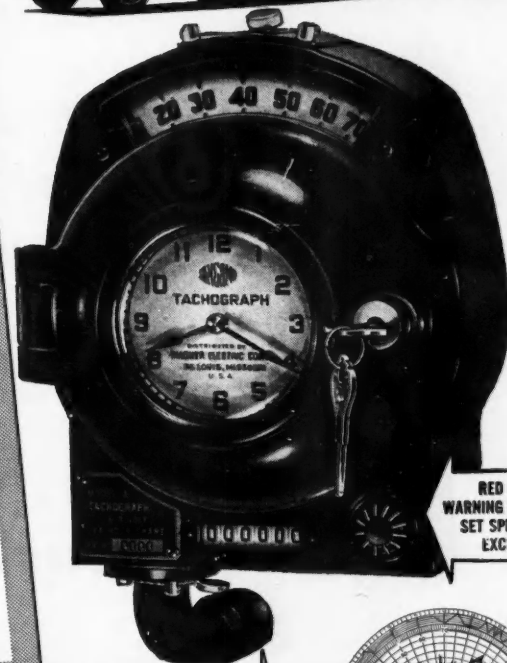
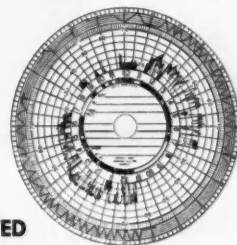


CHART TELLS ALL



- WHEN ENGINE STARTED
- HOW LONG ENGINE IDLED
- WHEN VEHICLE WAS IN MOTION
- HOW FAST IT TRAVELED
- WHEN VEHICLE STOPPED
- DISTANCE TRAVELED BETWEEN STOPS

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S52-3

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MODERN CONVEYOR HANDLING

July 16, 1951

Wagner Electric Corporation
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Minneapolis 4, Minnesota

Gentlemen:

Our entire fleet of over-the-road tractors is equipped with Sangamo Tachographs. We consider them a very vital part of our operation. We have used them for about four years. The maintenance costs have been very minor. We will attempt to briefly describe a few of the functions that the Tachographs perform.

1. They give us a positive control over regulating our top speed to 50 miles per hour.
2. They verify and substantiate the drivers' working time at stations.
3. They control the wasteful practice of idling motors without necessity.
4. They are most important as a part of each accident file, and frequently have substantiated a driver's report of location and speed and protected our interests in property damage claims.

Our over-the-road accident record for the first half of 1951 is .056 per 100,000 miles traveled. The Sangamo Tachograph deserves a fair share of credit for this achievement. We are satisfied with the result of this device, and we would not consider the operation of an over-the-road unit without its installation.

Yours very truly,

MURPHY MOTOR FREIGHT LINES, INC.

G. H. Becker
G. H. Becker, Operations Manager

Serving 338 Communities in Minnesota, Iowa, Wisconsin

There isn't much more we could add to the many facts about Tachographs stated by Mr. Becker of the Murphy Motor Freight Lines, Inc. If you are a fleet operator, interested in profitable payloads . . . lower maintenance . . . fewer accidents . . . reduced insurance rates . . . and driver protection—it will pay you to equip your vehicles with Tachographs. They are easily installed

on the dash of the vehicle and connected to the speedometer cable. A wax-coated chart is inserted at the start of each run and automatically-operated styluses make a permanent record of all movements of the vehicle, as listed at right. Coupon below will bring complete information. Mail it today.

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Continued from Page 128

Diesel Smoke

In "A Study of Factors Affecting Diesel Lubricant Performance," H. C. Morris, of the Texas Co., outlined some of the causes of exhaust smoke: 1. Engine design, 2. Fuel, 3. Engine operation, 4. Engine maintenance, and proceeded to show the effect of exhaust smoke on lubricant performance. A significant part of the work was the

measurement of piston temperature as a function of fuel-air ratio. Exhaust smoke in an engine in excellent mechanical condition at high power output is a function of the richness of the air-fuel ratio, he said. Ring sticking is a linear function of fuel-air ratio. From the fact that piston temperature is relative constant in the region from .050 to .065, while ring sticking is rapidly accelerated, it would appear that some factor other than piston temperature is responsible for the accelerated rate of ring sticking. In contrast, exhaust smoke increases rapidly with air-

fuel ratio and thus the conclusion may be drawn that in this region of relatively constant piston temperature, incomplete fuel combustion products are the controlling factors in ring-sticking.

Since groove deposits cause ring sticking it follows that they also should increase with increasing air-fuel ratio. Test results reveal that both ring lands and grooves show increased deposits with increased air-fuel ratio while the skirt, which is characteristic of heavy-duty oil, is practically clean at all times. Tests also showed that rates of formation of used oil insolubles are a function of air-fuel ratio.

Although the specific design features of any engine determine its performance characteristics, it is believed that on the basis of the experimental work presented, the following generalizations may be drawn which are applicable to the general class of Diesel engines.

When using a given fuel there is strong evidence to suggest that a definite relationship exists between exhaust smoke, used oil condition, piston temperature and piston deposits such that (a) in the "no-smoke" region piston deposits are primarily controlled by lubricant deterioration and increase with increasing piston temperature or fuel-air ratio; (b) in the smoke region piston temperature is relatively constant and deposits are primarily governed by the amount of incomplete fuel combustion products which increase with increasing fuel-air ratio or throttle opening. It is very evident that improper

(TURN TO PAGE 134, PLEASE)



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RESISTOFLEX Hose and Reusable Couplings

You always have the right fuel or oil line when you have on hand a coil of Resistoflex gas-oil hose and Resistoflex sturdy, 2-piece reusable couplings with safety seal. No waste, no trouble. Simply cut to length; assemble with only two end wrenches. And there you have a hose assembly widely known for dependability—the famous low pressure hose with the liner that's immune to gas, grease, diesel fuel and lube oil.

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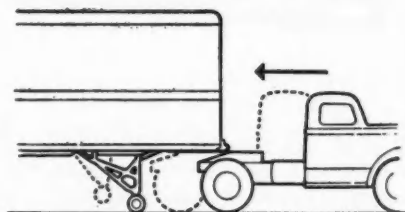
They contain coil of famous Resistoflex Gas-oil hose plus reusable couplings and adapters for every installation except hydraulic hose.



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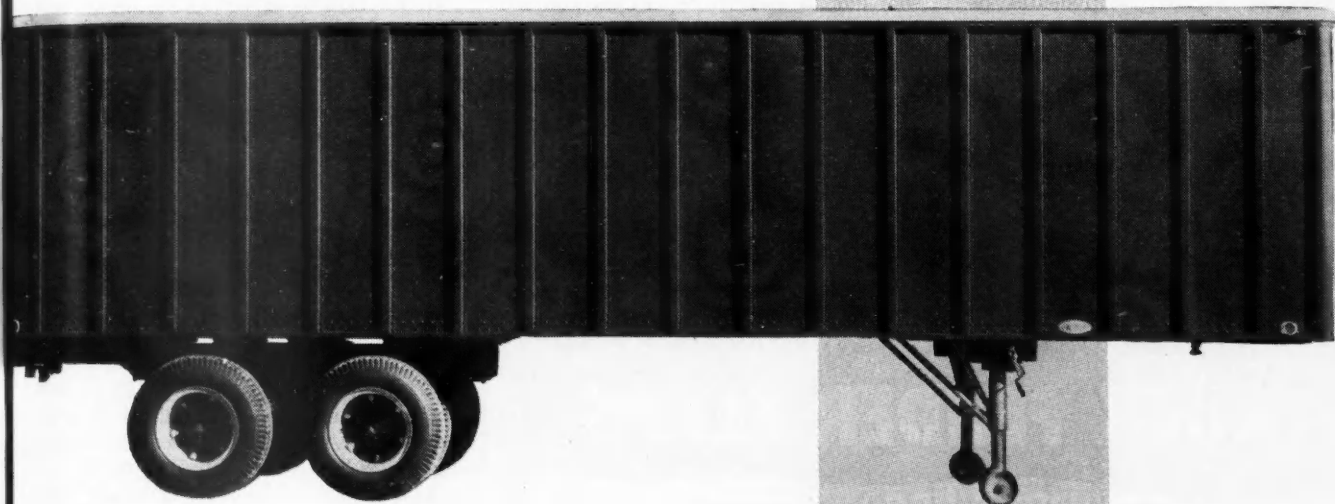


Hauling Explosives Safely



As a result of World War II experience with the hazards of hauling explosive powder, a special van has been developed for the purpose by the Fruehauf Trailer Co. About 3,000 of these Fruehauf powder-haul vans are now in service. A valuable feature is the automatic coupling which is completely cab-controlled. The driver backs the tractor under the trailer, which locks the king pin and raises the automatic supports in one motion. Uncoupling is done by a hand lever inside the cab which disengages the king pin. Lights and mechanical brakes are connected and disconnected automatically. Brakes are also self-setting.

Model 318TB-3



Every pound of dead weight taken off a trailer allows you to realize a bigger payload profit.

Over 20 years ago, Veenema & Wiegers, Inc., realized this basic fact. And, they proceeded to do something about it. In 1932, V & W worked closely with Alcoa engineers to produce their first chassis-less trailer of Alcoa Aluminum. Since then, V & W has continued to concentrate on reducing dead weight with Alcoa Aluminum while maintaining high construction standards. The latest models shown here have all-aluminum bodies and understructure, aluminum landing gears and wheels.

Alcoa Aluminum not only reduces weight . . . but maintenance costs are lower. Aluminum resists corrosion, needs no painting. Tires last longer. Repairs

are easier, less costly. Here again . . . you'll find "Extra payload is the payoff" with Million-Milers of Alcoa Aluminum.

Send for **FREE**
Trailer Booklet



Military needs limit the aluminum we can supply for civilian uses. But this 36-page "Payload Proof" booklet will give you valuable help in your long-range planning for more profitable equipment. Write today.

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ALCOA

First in Aluminum
The Metal that LASTS



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Continued from Page 130

maintenance or maladjustment can shift engine operation from the "no-smoke" to the smoke region and thus greatly accelerate the rate of deposit formation.

The various hydrocarbon types existing in diesel fuel appear to exert some influence on deposit formation although in this work it has not been possible to establish the specific relationships in-

volved. However, the effect of excessive exhaust smoke on the rate of deposit formation is so pronounced that, under very rich mixture conditions, it would tend to overshadow the effect attributable to the hydrocarbon types present in the fuel.

Sulfur compounds present in the fuel have an accelerating effect upon deposit formation.

Additive oils containing detergents and anti-oxidants are effective in reducing deposits stemming both from the sulfur present in the fuel and from soot due to incomplete combustion.

Another paper of particular interest to the fleet operator was that read by W. K. Creson, vice president of engineering, Ross Gear and Tool Co. In his paper on "Power Steering in 1952," Mr. Creson gave a history of power steering from the year 1876, when the first patent was filed. He provided a technical explanation of the operation of power assist units and explained in detail the working principles of various devices presently available. Further illustrations showed units installed on various types of heavy-duty equipment. Power steering, according to Mr. Creson, is definitely advantageous because it lightens work, contributes to safety and especially because its major technical problems, including cost, are yielding to years of testing and development.

Brake Synchronization

J. George Oetzel, vice president in charge of engineering, Warner Electric Brake & Clutch Co., in discussing the problem of "Synchronization of Brakes on Multi-Axle Truck-Trailer Trains," warned that many misconceptions exist regarding brake synchronization on combination units. The reasons for having trailer brakes "come in" ahead have to do with jack-knifing and skidding, not with obtaining the shortest stopping distances, he said. Tests made during the past year have led to a mathematical study of the timing of events without regard for any particular braking system. They indicate that brakes on certain axles and under certain conditions, do not reach full power until after the vehicle is at rest.

Because the kinetic energy of the vehicle varies with the square of the speed, the theoretical stopping distance should also vary as the square of the speed from which the stop is made.

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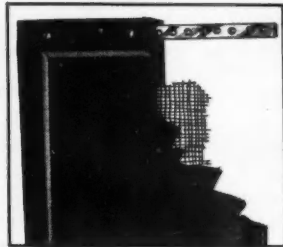


TRUCK FENDER FLAPS

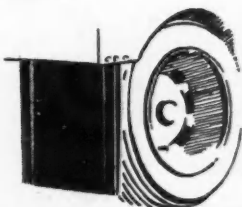
TRUCKER ENGINEERED — LAST LONGER
Meet all state requirements — Used by leading fleets



Note the tapered design, illustrated in cross-section, side view. Tapering distributes flexing action and prolongs life of flaps. Tapered reinforcement rib, top and sides, gives maximum "wind bend" resistance. Bottom has "slip edge"—no rib to hold mud or ice.



14 gauge perforated steel strip molded into top as anchor bar • Rubber, molded through perforations, bonds steel securely in place, can't slip • All flaps molded of quality rubber, impregnated with chopped tire cord • Optionally available with reinforcing sheet of strong fabric between layers of rubber, full length and width.

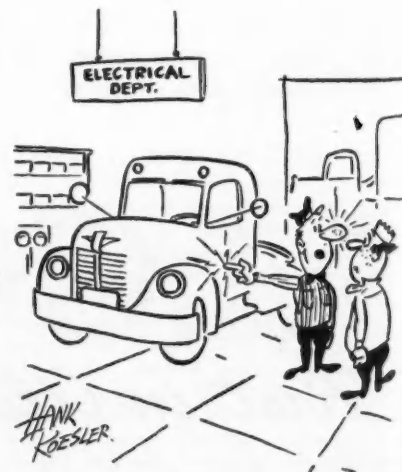


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"See, there's a short in it somewhere!"

SAE Annual Meeting

Continued from Page 134

However, the tests show a considerable variation; usually the stop from 40 mph will be 10 to 20 per cent less than 4 times the length of stop measured from 20 mph. From still higher speeds heating of the lining during the application may more than compensate for the favorable effect of the constant build up time and even make the stop longer than the square of the speed ratio would indicate.

This tire force is of considerable importance in figuring stopping distance. The relation between tire force, stopping time and the time required for the brake torque and the tire force to build up to full capacity must be figured in any formula measuring true braking capacity.

Mr. Oetzel introduced formulas to determine the relative value of the different force and time factors in stopping a train. He showed the need for shortening build up time if stops are to be shortened. He emphasized with mathematical formulas the importance of equalizing, as well as shortening the build up time of all the axles on a multi-axle combination. More remains to be done, he stated. After the above factors have been checked, we can think about adjusting the torque on each axle to weight variations and dynamic transfer in a move to improve braking ability on these combinations.

Heavy-Duty Lubricants

Highway tests with trucks and passenger cars, exceeding a total of 2,000,000 miles, have demonstrated that heavy-duty detergent lubricants contribute to engine cleanliness and to preventing the formation of varnishes and sludges, said A. C. Pilger, Jr., of Tide Water Associated Oil Co., in a paper on heavy-duty lubricants. In heavy-truck tests, the incorporation of inhibitor-detergent compounds improved engine cleanliness, he stated. In light-duty pick-up and delivery truck service the detergent lubricants were effective in combating wet sludge deposits, but greater improvement was made by introducing positive crankcase ventilation, oil filtration, and a high-temperature thermostat. In fast, cross-country passenger-car operation, detergent oils were found to combat the formation of deposits in engines.

Combustion chamber deposits and other engine difficulties which necessitate the use of higher-octane gasolines are becoming expensive, the meeting was informed by D. E. Carr, L. A. McReynolds, S. C. Britton, and R. E. Lin-

nard, of Phillips Petroleum Co. They explained that it costs 0.15 cents a gallon to add one octane number to fuel in the 90-95 octane range, as against 0.08 cents a gallon in the 80-85 octane range, and estimated that the 10 octane number increase due to combustion chamber deposits actually costs around \$350,000,000 yearly.

Carbon Deposits

A photographic answer to the question—How do carbon deposits affect the firing of an automobile engine? was given by Dr. Lloyd L. Withrow and Dr.

Frederick W. Bowditch of General Motors Research Laboratories.

Their technical paper, "Flame Photographs of Autoignition Induced by Combustion Chamber Deposits," was described as a progress report in a long-term fundamental study of automotive engine combustion. Using a high speed camera, they produced a photo record of the entire engine flame cycle in combustion chambers deliberately crusted and flaked with carbon in a V-8 and two single-cylinder laboratory test engines. Outfitted with transparent quartz

(TURN TO NEXT PAGE, PLEASE)

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from the most
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Manufactured to original equipment—Federal specifications. Under factory supervision, bearings are mounted properly on carrier sleeves. This means insurance against comeback—saves time and labor expense.

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1. Complete coverage—Immediate Jobber Service backed by complete warehouse and factory stocks near you.
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THE FEDERAL BEARINGS CO., INC., Poughkeepsie, N. Y.

The Most Complete Line of Ball Bearings for the Automotive Industry

Quality Since 1908

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Continued from Page 137

heads through which photos could be taken, the engines were run at low speeds under light load conditions, similar to the stop-and-go driving every motorist endures in city traffic.

In normal automotive engine combustion, the air-fuel charge from the carburetor is ignited by the spark plug and the flame fans evenly across the chamber until the charge is completely

and smoothly burned. It is like the sweep of a grass fire from one side of a field to the other in a high wind.

In a combustion chamber coated with carbon, Dr. Withrow and Dr. Bowditch demonstrated, the flame's symmetry is distorted or conspicuously absent. As a result, ignition timing is neutralized; the spark no longer controls firing of the air-fuel charge.

"Mechanical octane" numbers designed into the combustion chamber begin to depreciate. In effect, the air-fuel charge pops off before it is supposed to, and this subtracts from the

engine's efficiency and fuel economy. Obvious result to the car owner is that his engine operates roughly or may "ping" when quickly accelerated in traffic.

Photos of carbon coated combustion chambers show that before the normal spark from the sparkplug can inflame the air-fuel charge, the charge sometimes ignites in a galaxy of tiny explosions, either from hot carbon particles shaken loose in the turbulent gases or from hot carbon flakes sticking to the chamber walls.

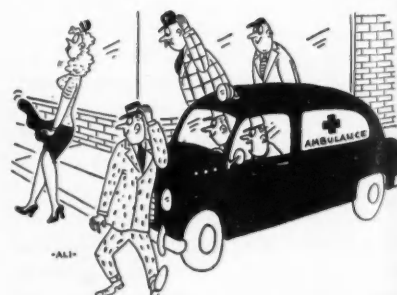
Although these explosions and erratic high pressures rob an engine of efficiency, they are not an unmixed curse. They are part of a process by which engines purge themselves of carbon, the photos revealed. Carbon particles cause trouble in transit, so to speak, but they are on their way toward an exist, the exhaust manifold.

Particularly significant, Dr. Withrow and Dr. Bowditch said, was photographic evidence indicating that decomposed products of leaded (Ethyl) fuels were not the only cause of autoignition (engine combustion by other means than the normal spark from a sparkplug).

"A few years back, many car owners made a practice of purchasing a tank of Ethyl gasoline at intermittent intervals to burn the carbon out of the engine," they said. "The present data together with the known chemical facts about the behavior of mixtures of carbon and lead compounds indicate that the lead salts left in the engine by the Ethyl gasoline are indeed capable of purging substantial amounts of carbon from the engine under some operating conditions."

Also, the two GM Research experts said, deposits formed by non-leaded fuels will purge themselves, thanks to traces of chemical substances in the air. Entering through the engine air intake, these substances not only lower burning temperature of carbon but also speed chemical reactions between carbon deposits and oxygen in the air.

(TURN TO PAGE 140, PLEASE)



"Let's hang around awhile . . . bet we get plenty of business on this corner!"



Heavy-duty steel case. Dust-proof. Weather-tite. Side or bottom mounting. Locking hasp.

You Know
BOLSER OIL FLARES

NOW SEE
GENUINE

BOLSER
REFLECTOR
FLARES

The Bolser Reflector Flare has everything . . . Exclusive locking device keeps lenses at right angle for maximum reflection and greatest warning distance . . . Plastic lenses hermetically sealed into permanent position . . . Main chassis upright holds metal flag staff . . . Rust-resistant, electroplated, heavy zinc finish.

Available: 3 Sizes with or without flag in carrying case—or single units only. See your jobber.

THE BOLSER CORPORATION
Cedar Falls, Iowa



MEETS I.C.C. AND STATE REGULATIONS

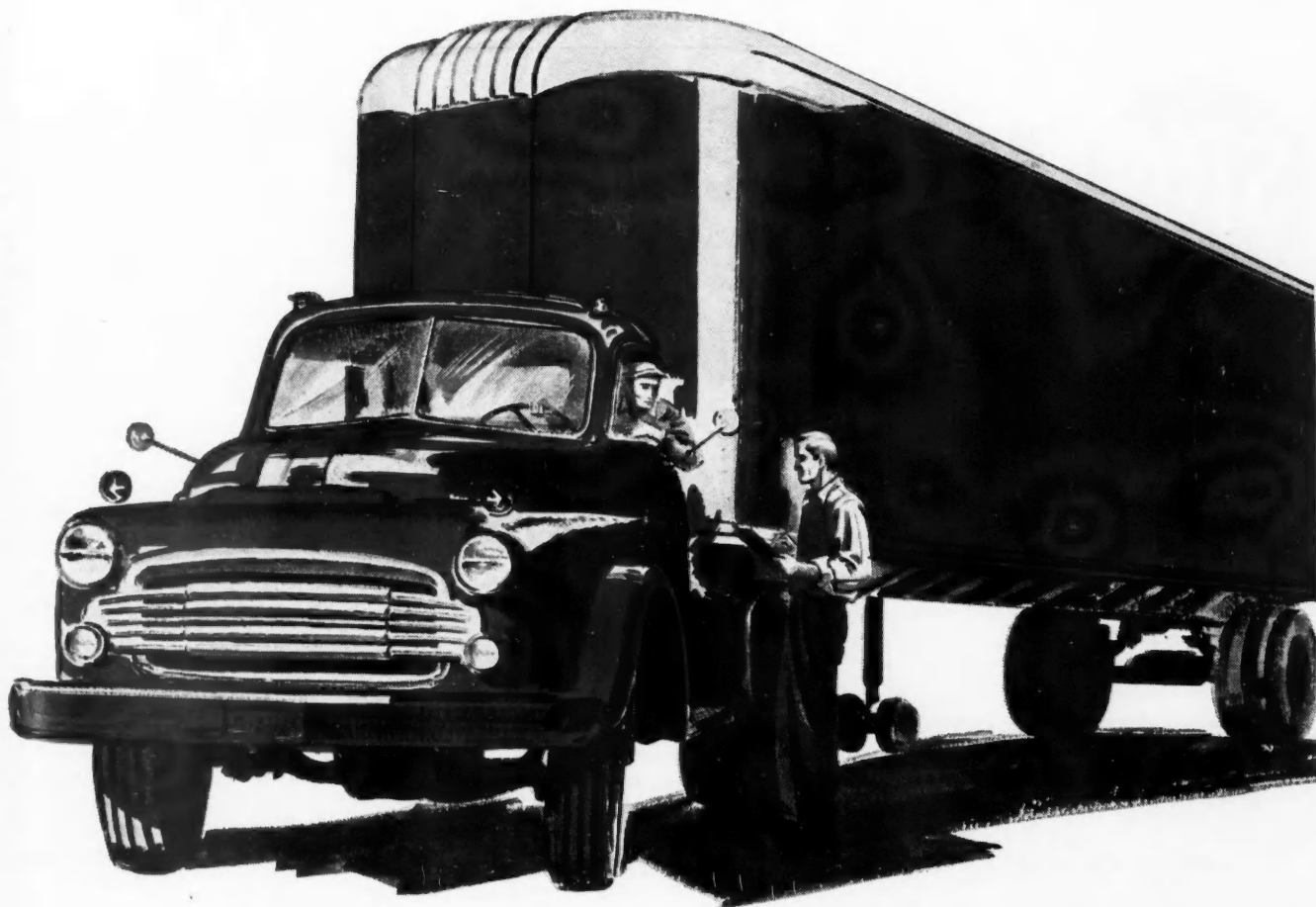
EASY AS
1, 2, 3
TO SET UP
OR
TAKE DOWN

1. PUSH
2. LIFT
3. LOCK

FOR Safety's SAKE

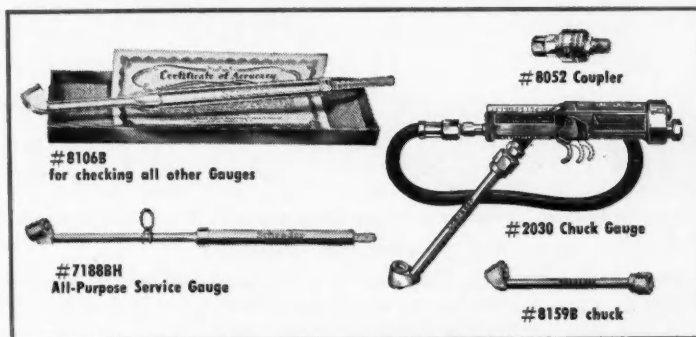
Get 'em there on time

Down time costs! It hits you smack in the pit of your profits! Your basic formula for profit is as simple as this: every truck...large or small...must get through on schedule. Roadside flats mean time...money. Schrader's preventive maintenance plan...developed around proper tire inflation...takes but a few minutes on each truck...but saves hours due to stalled loads.



PROPER TIRE SERVICE CUTS STALLED LOADS

Certify the accuracy of your inflating equipment with a Schrader 8106B Trutest Special Gauge...and keep your airlines in perfect operating condition with Schrader Air Chucks, Couplers, Chuck Gauges and Accessories. Use the Schrader 7188BH All-Purpose Service Gauge for all your tire inspection work. Ask your supplier for quality Schrader products.



Schrader

REG. U. S. PAT. OFF.

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Incorporated
470 Vanderbilt Avenue, Brooklyn 17, N. Y.

FIRST NAME IN TIRE VALVES
FOR ORIGINAL EQUIPMENT AND REPLACEMENT

SAE Annual Meeting

Continued from page 138

Another important phase of this GM Research investigation was to track down so-called "wild ping."

This is a type of knock that occurs in some carbon coated engines when a motorist accelerates suddenly in traffic. "Wild ping" is spontaneous—not the usual xylophone sequence of ordinary hill climbing or steady acceleration knock.

Dr. Withrow and Dr. Bowditch observed photographically that while a test engine was run at idling speed, carbon flakes in the combustion chamber glowed a dull red. "But as soon as the throttle was opened," they reported, "the space in the combustion chamber was filled with glowing particles which reminded one of fireworks at a Fourth of July celebration."

"This 'ping' or knock followed the dislodging of deposit particles which became hot enough by themselves to ignite the incoming air-fuel charge. Before spark inflammation could occur,

the chamber was so alive with small explosions that photos of the phenomenon resembled pictures of the Milky Way taken by astronomers.

Other types of autoignition also were photographically investigated. For instance, Dr. Withrow and Dr. Bowditch let an engine run without electrical ignition after it had been well coated with heavy deposits.

In these photos, also, either hot particles whizzing through the gaseous charge or particles clinging to the chamber walls automatically ignited the air-fuel charge. The explosions, like those of "wild ping," conformed to no definite shape or pattern.

Dr. Withrow and Dr. Bowditch pointed out that if carbon deposits never purged themselves, the combustion chamber of an engine would fill up with solid material and require mechanical attention.

"Thus," they said, "it is apparent that in the process of eliminating one problem, the deposit removal introduces another in the form of autoignition."

They explained that "general distortion" of the flame in the combustion chamber usually resolves itself into a race of normal engine spark versus autoignition.

Fortunately, they said, hot particles generally kindle the air-fuel charge just before or at the instant the engine piston reaches top dead center.

By advancing the engine spark, it is possible to stack the race in favor of normal engine spark, but the speakers admitted that advancing the spark may amplify the knock problem. Thus a compromise must be reached.

The speakers said flame photographs offered no definite conclusions covering all cases of autoignition, but the photos prompted a "number of general observations that bear on the deposit problem."

Other prepared papers read at the meeting included:

Field Performance of Detergent Type Oils in Gasoline Powered Vehicles, by A. C. Pilger, of Tide Water Associated Oil Co.

A Test for Antifreeze Contamination in Crankcase Oil, by George J. Liddell and Ruth Marshal, of Sun Oil Co.

Combustion Chamber Deposition and Power Loss, by H. J. Gibson, C. A. Hall, and A. E. Huffman, of the Ethyl Corp.

END

Please Resume Reading Page 59

Night Sights

THE SIGHTS I SEE THROUGH WINDOWS WHEN
I DRIVE A TRUCK AT NIGHT
CONVINCE ME THAT, WHEN SHADES ARE UP,
ONE SHOULD TURN OUT THE LIGHT.

—Omer Henry



Route your trucks the shortest way every trip. The time and gas used by your drivers looking for unknown streets, driving all around Robinson's barn to make deliveries, will buy a hundred maps like Hearne's Street Map of your city and county area.

Street names are in big, black type, and instantly spotted with Hearne's patented, automatic Street Finder. And every map is mechanically indexed.

Over 100,000 truck owners use Hearne maps every day to give customers better service and cut truck mileage. Many users claim they save the cost of the map in a single day's use.

YOUR CITY MAP FOR 10-DAY FREE TRIAL

Send for cloth, cellophane-finished 44" x 65" map now. Stop delivery waste. Mark routes in crayon we supply. Washes off instantly. Use map for 10 days. Then, if you can get along without it, send it back... or send \$42.50 and it's yours.

MAIL TODAY OR USE YOUR LETTERHEAD

FREE EXAMINATION ORDER FORM

Hearne Brothers (America's Largest Manufacturers of Commercial and School Maps)
23rd Floor, National Bank Bldg., Detroit 26, Michigan.

Without obligation on my part, send me a map of my city and county area. After 10 days' FREE use in my office I'll return the map or remit \$42.50. Prices on cloth, cellophane, spring rollers, stainless steel and labor are going up! Order today!

Your Name _____

Company _____

Address _____

City _____ Zone _____ State _____

First Choice



for Balanced Performance

Delco-Remy units are engineered to give balanced performance throughout the entire electrical system.

The resultant economy and general operating efficiency explain the fleet owner's satisfaction with his Delco-Remy-equipped vehicles.

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

WHEREVER WHEELS TURN OR PROPELLERS SPIN



DELCO-REMY—

A UNITED MOTORS LINE

Available Everywhere Through
UNITED MOTORS DISTRIBUTORS



INTRODUCING . . .

... WILLIAM NELSON, appointed vice president and assistant general manager of ACF-Brill Motors Co., Philadelphia, Pa.

... R. G. WINGERTER, assistant general manager and J. R. SPLITSTONE, district manager of Automotive Sales Div., Timken Roller Bearing Co., Canton, Ohio.

... L. B. McDONALD, appointed assistant to the president, Interstate Motor Freight System with offices in Grand Rapids, Mich. Other Interstate personnel changes include: R. M. PHILLIPS, Southern division manager; and R. F. WITTEGRAFF, Western division manager.



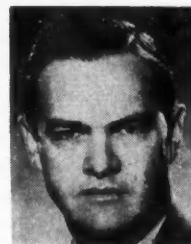
... HARRY J. LEMMER, as advertising manager of the Waukesha Motor Co., Waukesha, Wis.

... LOUIS E. PFEFFER, as terminal manager for Spector Motor Service, Indianapolis, Ind., terminal.

... WALTER S. MASON, appointed by the Autocar Co., Ardmore, Pa., to manage its St. Louis, Mo., district.



... KENNETH R. MACLEAN, as sales manager for the Automotive Div., Crescent Co., Pawtucket, R. I.



... HENRY J. NAVE, director of service sales and service operations for White Motor Co., Cleveland, Ohio.

... MERLE L. HASTLINE, as assistant director of the Department of Safety, American Trucking Association, Washington.

... MALCOM P. MURDOCK, general sales manager for the Ethyl Corp., New York.



... Three new vice presidents of Mack Motor Corp. They are: (Left to Right) PIERCE J. FLEMMING, manager of Mack's off-highway division; H. BERNARD, in charge of service, and T. J. ZELLER, chief engineer.



(TURN TO PAGE 144, PLEASE)



use only
**FACTORY NEW
'GENUINE
BENDIX DRIVES
and
PARTS!**

It's easy to build a reputation for quality if you use only genuine parts in your repair work. For example, when you service Bendix* Drives be sure to use only *factory new* Bendix Drives and Parts. This means your customers will get the same dependable performance that is built into every original Bendix Drive—performance proven by over 85,000,000 installations. Insist on *factory new* Bendix Drives and Parts when you order from your distributor.

*REG. U.S. PAT. OFF.



Bendix Drive

ECLIPSE MACHINE DIVISION of
ELMIRA, NEW YORK

Export Sales: Bendix International Division, 72 Fifth Ave., New York 11, New York



Get the solid facts!
See how you save with

CHEVROLET

Advance-Design TRUCKS



**Fact
No. 1**

PAY LESS AT THE START

Chevrolet trucks list for less than any other trucks built to handle the same payloads. Here is a real, money-in-the-bank savings on purchase price. And you'll find the Chevrolet brings you ruggedness, stamina and great truck features not found in many other trucks.

**Fact
No. 2**

GET LOWER ON-THE-JOB COSTS

Chevrolet trucks give you Valve-in-Head economy that saves gas, four-way engine lubrication that reduces wear and saves oil, and tough, rugged construction for longer truck life. Like truck users everywhere, you'll find Chevrolet trucks cost less to own and maintain.

**Fact
No. 3**

TRUCKS BUILT FOR YOUR PAYLOADS

Chevrolet trucks are factory-matched to meet your requirements. You get the right truck for the job . . . never "too much" or "too little" truck. Frame, axles, springs, body, brakes, and power form a balanced team.

**Fact
No. 4**

BIGGER TRADE-IN VALUE

Records show that Chevrolet trucks traditionally bring more money at re-sale or trade-in than many other makes. Chevrolet's market value stays up because the value stays in. More reason to see your Chevrolet dealer for your best truck buy!

ADVANCE-DESIGN



TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • **POWER-JET CARBURETOR**—for smooth, quick acceleration response • **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement • **SYNCHROMESH TRANSMISSION**—for fast, smooth

shifting • **HYPOID REAR AXLE**—for dependability and long life • **TORQUE-ACTION BRAKES**—on light-duty models • **PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES**—on medium-duty models • **TWIN-ACTION REAR BRAKES**—on heavy-duty models • **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-

duty models • **CAB SEAT**—with double-deck springs for complete riding comfort • **VENTILATION PANES**—for improved cab ventilation • **WIDE-BASE WHEELS**—for increased tire mileage • **BALL-TYPE STEERING**—for easier handling • **UNIT-DESIGNED BODIES**—for greater load protection • **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN





Champ-Items Automotive Replacement Parts are designed to help you give Faster—Better—Safer Service. There's more than 200 Service Winners in the Champ-Items line.

**THIS SERVICE
WINNER IS JUST
WHAT YOU
ORDERED**



U. S. Pat. No. 2,504,510

No. 488 WINDOW CHANNEL SHIM for all Cars and Trucks

Easy to install—a permanent repair—weatherstrips against rain—insulates against cold. Eliminates the rattle of windows due to excessive wear of original channel felt causing glass to contact metal. Is installed between edge of glass and old channel through the entire length of window. List \$1.00 each.

Write for your copy of
supplement of new items
for '52 to Champ-Items
Catalog No. 500-R.

ORDER FROM YOUR JOBBER



CHAMP-ITEMS, INC.
6191 Maple Ave., St. Louis 14, Mo.

Introducing

Continued from Page 142

...CHARLES R. DOYLE, JR., as company field sales-service representative for Gumout division of the Pennsylvania Refining Co., Cleveland, Ohio.

...W. C. ROBERTS, assistant sales manager for Prest-O-Lite Battery Co., Inc., Toledo, Ohio.



...ED GRAY, E. S. SCHULZE and WILLIAM PASMA, regional managers for Sealed Power Corp., Muskegon, Mich.

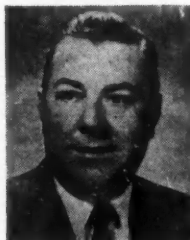


...R. E. TEMPLETON, as Central regional manager of Highway Trailer Co., Edgerton, Wis.

...CARL R. GEYER, sales representative for Electric Auto-Lite Co., Toledo, Ohio.

...W. W. DUNCAN, as automotive division representative in the Atlanta, Ga., area for Martin Semour Paint Co.

...GEORGE L. COLEMAN, as national service coordinator for Brown Trailers, Inc., of Spokane, Wash.



...G. B. DAVIS, elected vice president in charge of sales, Baker Industrial Truck Div., Baker Raulang Co., Cleveland, Ohio.



...FRED E. BURNHAM, as vice president and controller of Fruehauf Trailer Co., Detroit, Mich.

...DONALD S. HUBER, as assistant advertising manager of Purolator Products, Inc., Rahway, N. J.

...ROY B. LAINE, sales representative for the Philadelphia area for Dura-Bond Engine Parts Co., Palo Alto, Calif.

Budd Wheel Distributors provide the same service described in this advertisement

AKRON—Motor Rim Manufacturers Co.
ALBANY—Wheels, Incorporated
ALBUQUERQUE—Wheels & Brakes, Inc.
ATLANTA—Harris Automotive Service, Inc.
BALTIMORE—R. W. Norris & Sons, Inc.
BIRMINGHAM—Wheel, Rim & Parts Co.
BOSTON—New England Wheel & Rim Co.
BUFFALO—Frey, the Wheelman, Inc.

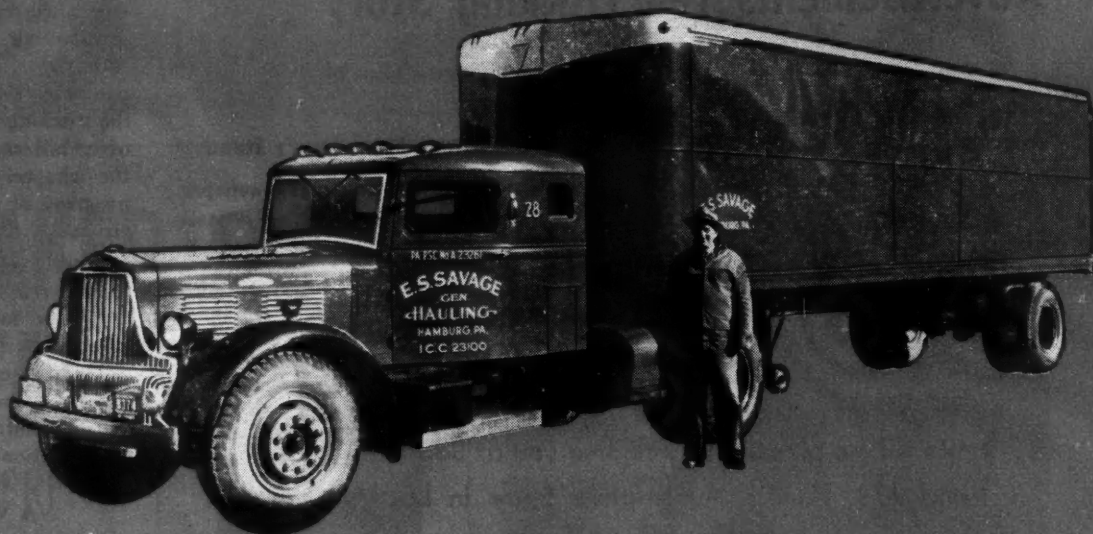
CHARLOTTE—Carolina Rim & Wheel Co.
CHICAGO—Stone Wheel, Inc.
CINCINNATI—Rim & Wheel Service, Inc.
CLEVELAND—Motor Rim Manufacturers Co.
COLUMBUS—Hayes Wheel & Spring Service
DALLAS—Southwest Wheel, Inc.
DAVENPORT—Stone Wheel, Inc.
DAYTON—Rim & Wheel Service, Inc.
DENVER—Quinn & McGill Motor Supply Co.
DES MOINES—Des Moines Wheel & Rim Co.
DETROIT—H. & H. Wheel Service, Inc.
EVANSVILLE—Auto Wheel & Rim Service Co., Inc.
FARGO—Wheel Service Company
FORT WAYNE—Wheel & Rim Sales Co.
GRAND RAPIDS—Rim & Wheel Service Co.
HARRISBURG—Standard Rim & Wheel Co.
HARTFORD—Connecticut Wheel & Rim Co.
HOUSTON—Southwest Wheel & Equipment
INDIANAPOLIS—Indiana Wheel & Rim Co.
JACKSONVILLE—Southeast Wheel & Rim Co.
KANSAS CITY—Borbein, Young & Co.
KNOXVILLE—Harris Automotive Service, Inc.
LOS ANGELES—Wheel Industries, Inc.
LOUISVILLE—Auto Wheel & Rim Service
MEMPHIS—Beller Wheel, Brake & Supply Co.
MILWAUKEE—Stone Manufacturing Co.
MOLINE—Mutual Wheel Co.
NASHVILLE—Beller Wheel, Brake & Supply Co.
NEWARK—Automotive Safety Inc.
NEW HAVEN—Connecticut Wheel & Rim Co.
NEW ORLEANS—Southern Wheel & Rim Co.
NEW YORK—Wheels, Incorporated
OKLAHOMA CITY—Southwest Wheel, Inc.
OMAHA—Morgan Wheel & Equipment Co., Inc.
PEORIA—Peoria Wheel & Rim Co.
PHILADELPHIA—Thomas Wheel & Rim Company
PITTSBURGH—Wheel & Rim Sales Co.
PORTLAND—Six Robbles', Inc.
PROVIDENCE—New England Wheel & Rim Company
RALEIGH—Carolina Rim & Wheel Co.
RICHMOND—Dixie Wheel Co., Inc.
ROCHESTER—Frey, the Wheelman, Inc.
SALT LAKE CITY—Henderson Rim & Wheel Service
SAN ANTONIO—Southwest Wheel & Equipment
SAN FRANCISCO—Wheel Industries, Inc.
SEATTLE—Six Robbles', Inc.
SOUTH BEND—Wire & Disc Wheel Sales & Service
SPOKANE—Bearing & Rim Supply Co.
SPRINGFIELD, ILL.—Illinois Wheel & Brake Co.
SPRINGFIELD, MO.—Borbein, Young & Co.
ST. LOUIS—Borbein, Young & Co.
ST. PAUL—Wheel Service Co.
SYRACUSE—Colbourn Wheel & Rim Service, Inc.
TACOMA—Six Robbles', Inc.
TOLEDO—Wheel & Rim Sales Co.
WICHITA—Borbein, Young & Co.
WINSTON-SALEM—United-Automotive Service

EXPORT

CLEVELAND—C. O. Brandes, Inc.

CANADA

CALGARY—Fisk Tire Service Ltd.
EDMONTON—Alberta Wheel Distributors, Ltd.
MONTREAL—Auto Wheels & Supplies, Ltd.
TORONTO—Wheel & Rim Co. of Canada, Ltd.
VANCOUVER—Wheels & Equipment, Ltd.
WINNIPEG—Ft. Garry Tire Service Ltd.



TIRE DEALER HELPS CUSTOMER GET LONGER MILEAGE



GENUINE

Budd

COLD TAPERED DISC

WHEEL

*Specify Budd Wheels and
Standardize on them*

- Earl Savage, who operates 23 trucks and tractors out of Hamburg, Pa., hauling coal, sand, stone and castings, is a customer of Yahner's Reading General Tire Co. The mileage he was getting on his tires was far from satisfactory even for this rough country.

Yahner's called in Merle Richman and Tom Berry, president of Thomas Wheel & Rim Co. Inc., Philadelphia distributors for Budd Wheels, to see what could be done.

The result was a change-over of the entire fleet to Budd wide base wheels with tapered seats under both beads.

Berry writes us: "Earl was certainly happy when his tire mileage increased from 30,000 to 56,000 miles and still going strong before first recapping. No more bead failures. Just slow, even, smooth wear, always in alignment."

Look up the name of your nearby Budd Wheel distributor in the adjoining column and have him inspect your fleet, *whether you think you've got tire troubles or not.* He's a wheel expert. If you're as well off as you can hope to be, he'll tell you so. If not, with Budd Wheels he's equipped to save you money. Give him a call.

The Budd Company, Detroit 14.

Advertisements Tell Trucking Story

Continued from Page 69

passenger car motorist, the closing paragraph read: "And to the truck operators this little suggestion—Keep your trucks off the busy highways over the Fourth except in case of necessity. Passenger traffic will be slightly terrific. The industry can aid in safety by foregoing trips not absolutely necessary."

The Things They Don't Read

ALL too often the average newspaper reader is not familiar with state legislation, even if it affects him directly. How, then, could he know all about impending truck legislation unless he is told, simply and directly. The

advertising Committee ran a series of ads outlining the drastic penalties for overloading incorporated in a bill before the state legislature but pointed out, why the bill was a fair deal for the trucking industry. An announcement of a bill may soon be forgotten, but the chapter continued to report the progress of the bill, repeating its provisions.

Closely allied with what the public seldom reads is the general feeling that there are too few people at the polls on election day. The "Don't Vote, Don't Complain" advertisement hit this problem hard and in addition, the name of the association was again brought to the attention of the readers.

A Word of Thanks

A WORD of tribute, thanks, or appreciation is always acceptable and quite often favorably remembered. The PMTA chapter said "thanks" to the Red Cross and the citizens of the community for supplying a quantity of rare AB Negative blood to an injured motorist. The truck angle? He was a PMTA officer.

The four general classifications of a newspaper publicity ad discussed here could be changed and added indefinitely. The list of possibilities in presenting stories and behind-the-scene information is limitless. With some coaching and some keen observation a similar newspaper campaign may be carried out elsewhere regardless of the size of the community, the number of chapter members, or the newspaper space rates.

Talking About Trucks

THE problem of how to promote the trucking industry and its interests directly is a little more difficult. The Chapter advertising committee came up with an answer. Last spring the entire country was defense conscious. The headline "Back in Service Again Keeping Things Rolling" seemed in order, and it was followed by a short statement of how the trucking industry was making its contribution to the nation's economy and particularly the national defense effort.

Within the industry itself are many stories which may be told. Some are strictly stag-party stuff, but there are plenty which will be worthwhile telling in the newspaper ad. Keeping the timeliness of news in mind, for example, the story of a truck driver who saved a small boy from drowning was published by the chapter just a few days after the incident. The same story told the following year would have lost its impact.

(TURN TO PAGE 148, PLEASE)

We will be pleased to welcome you at Booths 177, 178 and 179, Pacific Automotive Show in Los Angeles.

MORE BUSINESS FOR YOU IN '52 WITH

A NEW **AEROL** PRODUCT

THE CLEVELAND PNEUMATIC TOOL CO.
Now Makes and Sells
CLAYBORNE ENGINE STANDS AND DOLLIES



THE MOST POPULAR STAND IN THE INDUSTRY:
No. 200—A Universal Stand, end roll-over,
ideal for all types of engines weighing up to
600 lb. Rotates engine full 360°, locks in
four convenient positions to handle engines
securely for every overhaul operation.

You need easier, safer, speedier, and more profitable overhaul jobs—and you'll get them when you use AEROL equipment.

In addition to its popular AEROL LIFTS, Cleveland Pneumatic Tool now produces the complete performance-proved line of Clayborne Engine Stands, Dollies and Lift Kits—one of which is *exactly right* for your particular work.

In your own shop you'll prove an AEROL product is less expensive to own and operate than "homemade" equipment.

The new 1952 catalog of AEROL automotive products is hot off the press. Send for your copy today. You'll find out *which* of these AEROL products you need, *how* it can help lick your shop costs, and *why* CPT is First in Automotive Handling and Positioning Equipment.



THE CLEVELAND PNEUMATIC TOOL CO.

Automotive Division

3769 E. 77th Street Cleveland 5, Ohio

Please send me a copy of the new AEROL catalog.

Name _____

Street _____

City _____

Zone _____ State _____



**QUAKER
STATE**

**SUPERFINE
LUBRICANTS**



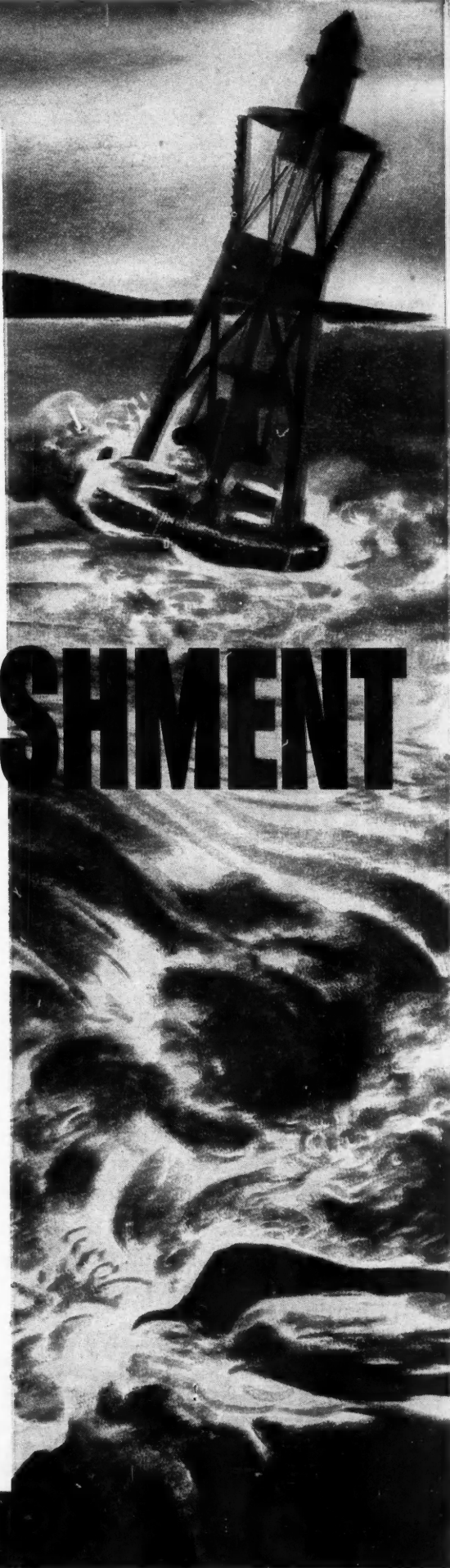
Built to take **PUNISHMENT**

● The ability to withstand the rough and tough punishment of weather and water is characteristic of both a marine buoy and a really fine pressure gun grease, like Quaker State EXPP2 Lubricant. This satin-smooth lubricant has toughness, strength, stability and great "cushioning" qualities. It is—without doubt—the most dependable pressure gun lubricant for any automotive chassis money can buy.

Investigate the improved performance, the extra protection, the uniform dependability you get by using the complete line of Quaker State Superfine Lubricants.

A COMPLETE LINE OF FINEST QUALITY LUBRICANTS

- Quaker State Super Quadrolube
- Quaker State Viscous Lubricant
- Quaker State Wheel Bearing Lubricant
- Quaker State EXPP2 Lubricant
- Quaker State Universal Joint Lubricant
- Quaker State Waterproof Lubricant
- Quaker State Quadrolube



Advertisements Tell . . .

Continued from Page 146

Chapter Program is Important

THE initial step in the formation of this type of chapter activity was the stimulation of participation on the part of member firms in the association. How effective this was can best be told by one of the pioneers of the public relations idea in the Lawrence County chapter. He's Sam Mooney, vice presi-

dent of Mooney Bros. Trucking Co., New Castle, Pa.

He said, "Our local chapter is active in all civic matters. We have a dinner meeting once a month, an annual ladies' night dinner, an annual corn roast, and an anniversary dinner meeting."

In turn, the dinner sessions are attended by invited guests representing local, county, and state governments, regardless of their political beliefs or party affiliation. This stimulates further civic activity on the part of the chapter members, who in turn soon become anxious that general public relations be improved.

The Professional Touch

THE Lawrence County boys sensed one pitfall almost at the beginning of the campaign. With the activities of the chapter running in high gear, the enthusiasm of the members to promote better relationship in the community might actually cause the program to lose its punch or to fail entirely. Well-meaning members with plenty of savvy with a truck, might not realize that public relations, promotion and publicity constitute something of a profession in itself.

To avoid the muddle and yet capitalize on the business experience of the members, the Lawrence County Chapter has engaged a newspaperman, Bart Richards of the New Castle (Penna.) *News* as their part-time public relations man, to work with the chapter's advertising committee.

How It's Paid For

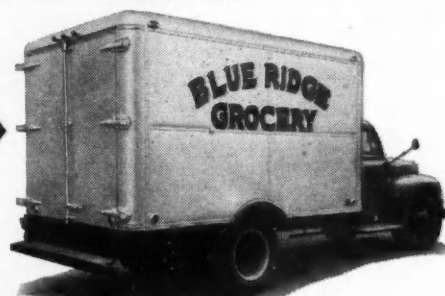
ADVERTISING of this type is not free, yet it is relatively inexpensive when the total number of readers is considered. The rates charged by newspapers vary with the number of editions per day, the number of insertions, the day of the week, etc. Naturally, the first step is to set up a tentative advertising budget. The campaign

(TURN TO PAGE 150, PLEASE)



**the proper
DOOR LOCK for a
body job
like this**

Body built by
Carolina Equipment Sales Corp.
Charlotte, N. C.



WHETHER your body building program concerns commercial or military types, you are certain to find that the majority of **E** "Purpose Tested" truck body fittings shown in the catalog, will suit most of your needs.

Write for the Eberhard Catalog which illustrates and describes the most complete line of truck body hardware available.

EBERHARD *Long Run*
TRUCK BODY FITTINGS



EBERHARD MANUFACTURING CO.

Division of the Eastern Malleable Iron Co.

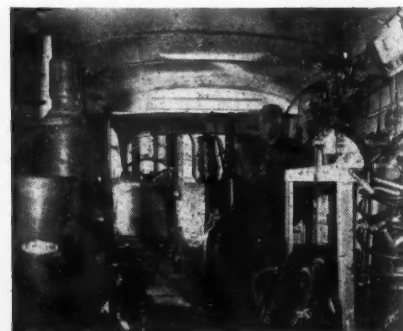
EVARTS AVENUE

CLEVELAND, OHIO

Mobile PM Unit



This is the mobile maintenance truck recently made by Barnett Detroit Cartage Co. to service their fleet without bringing the units to a central shop. Described in detail on Page 366, November issue of *Commercial Car Journal*, the exterior of the unit (above) shows the conventional curb delivery body. The interior view (below) shows position of the various PM tools and equipment.





"Coast to coast you get the most from FITZGERALD Metallic Aluminum- Fused-Oxide Steel Asbestos GASKETS"

SAYS P. J. FITZGERALD

Gaskets are as vital to a car as gasoline... and a gasket failure can be far more costly than running out of gas. That's why it pays, when you install new gaskets, to use Fitzgerald Metallic Aluminum-Fused-Oxide Steel Asbestos Gaskets.

Designed and ruggedly built to withstand the extreme pressures and heat developed by modern high compression engines, they have proven their ability to give unflinching performance under all sorts of operating conditions.

Since 1906 Fitzgerald has stood for progress in gaskets. Distributed exclusively abroad by the world's largest manufacturer of automobiles.

President

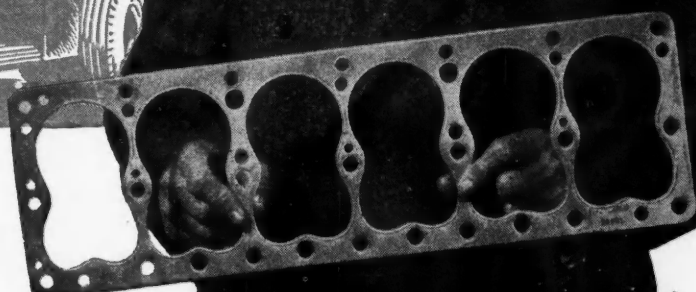
THE FITZGERALD MANUFACTURING CO.

CANADIAN FITZGERALD, LTD.
TORONTO, CANADA

COMMERCIAL CAR JOURNAL, February, 1952

Torrington, Connecticut

BRANCH AND WAREHOUSE
LOS ANGELES, CALIFORNIA



SECTION A—A
**.002"-.003" THICK
 FUSED ALUMINUM OXIDE**

**ELECTRICALLY
 ANNEALED STEEL**

ASBESTOS

**.002"-.003" THICK
 FUSED ALUMINUM OXIDE**

A—A

GREASE RETAINERS — CORK GASKETS — FITZ-RITE
 TREATED FIBER GASKETS FOR OIL, GASOLINE
 AND WATER CONNECTIONS
 COMPLETE SETS FOR MOTOR REBUILDERS

FITZGERALD
Gaskets
 SINCE 1906

Advertisements Tell

Continued from Page 148

should be planned to reach the most people, at the best time of the day.

The Lawrence County association set this minimum-maximum budget at \$1500 per year. They decided that the ideal advertisement would be one with a large black rule border, covering a total area of 20 col. in. for which they were charged \$1 per inch or \$20 per insertion.

The New Castle News has a daily circulation of about 16,000. The Saturday issue is somewhat smaller, there is less competition with larger advertisements, and the issue is read over the week end, there being no Sunday edition. This was the issue, day, and time for insertion.

Information of that sort, circulation, readership, position of the larger or competitive advertisements is one thing that a newspaper's advertising manager will be glad to offer a prospective advertiser.

The Lawrence County Chapter uses

a direct assessment method of dividing the costs of the advertising program. The annual budget for this purpose is divided, with each interested member sharing part of the cost.

A Double Pay-Off

THE effect upon the attitude of the people of the community is difficult to measure accurately. Reports do indicate, however, that there is a more favorable attitude prevailing. The big pay-off is in the official recognition accorded the trucking industry, as represented by the Lawrence County Chapter.

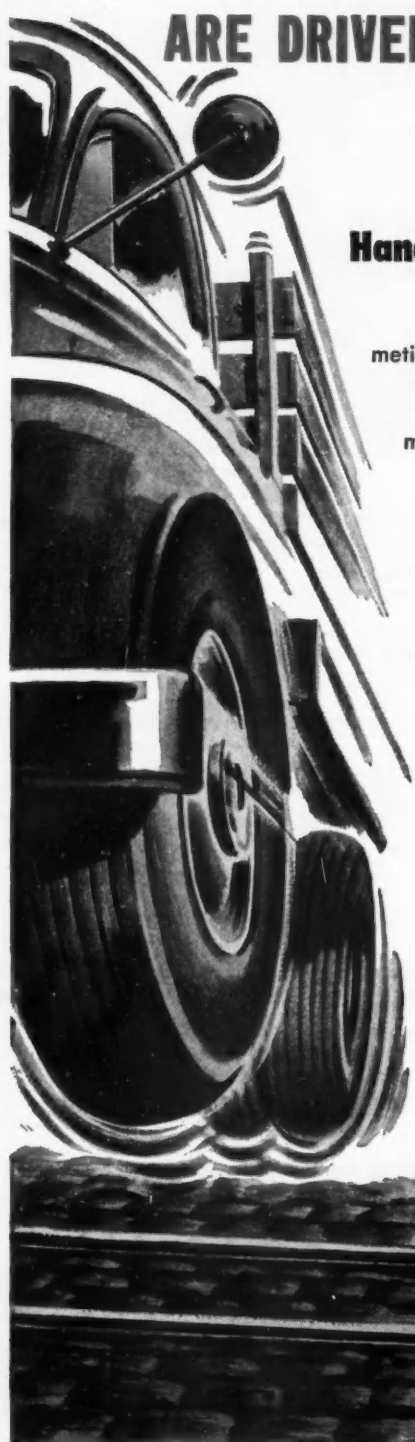
City Council of New Castle has made this recognition. Before restrictions are placed on trucks or a change is made in certain truck routes the Council calls a conference with the chapter officers in order that their side of the question may be heard. The views of the chapter are not ignored and when the Council has arrived at a conclusion, it is usually a more reasonable one for the trucking industry.

The influence and prestige of the chapter has grown beyond the local community. Each year for the past several years the state highway superintendent for the area invites the PMTA chapter president and other members of the highway committee to make a tour of the county roads on which state highway improvements have been made during the year.

While the exact system used in the Lawrence County area may not apply to every locality or to every public relations problem, its principles may well apply. The industry is in need of a consistent promotion program, one in which newspaper advertising at the local chapter level is an integral part.

END

Please Resume Reading Page 70



ARE DRIVERS "RAILROADING" YOUR VEHICLES?

Handy Governors Will Stop It

Any driver is likely to be less than meticulous in his care of a vehicle he doesn't own. Many feel no compunction about "railroading" your vehicles. Drivers do most of their work away from supervision . . . abuses are hard to correct.

Handy Governor will stop "railroading"
—stop practices which run up costs
and wear out vehicles before their time.

The savings in tire, fuel, and lubricant costs, engine repairs, brake maintenance and general maintenance are spectacular. Reduced accident and insurance costs are equally important.

Let us show you some figures
on savings — and tell you how little
it costs to get them.

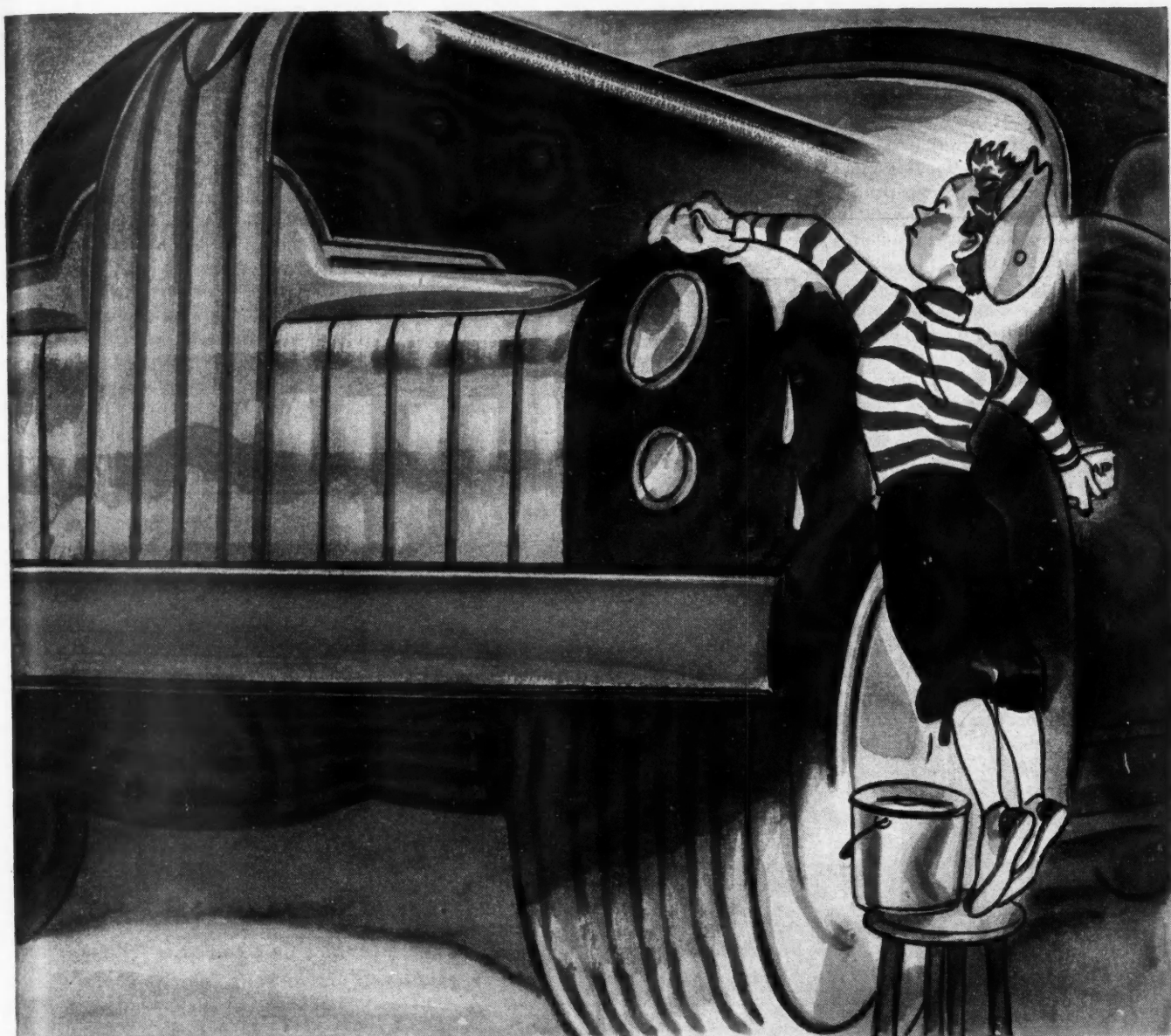


KING-SEELEY CORPORATION

ANN ARBOR, MICHIGAN

PLANTS AT
ANN ARBOR, SCIO,
YPSILANTI





Don't send a boy to do a man's job!

GOT A BIG JOB TO DO? You need a *man* to do the work! And to keep the engines of a fleet of trucks or buses clean and efficient, it pays to use a "man-sized" motor oil!

Phillips 66 Heavy Duty Motor Oil meets this "man-sized" specification. It's refined by the new, improved "cold fractionation" process. The basic quality of Phillips tough crudes is not broken down by overheating. And selected additives help keep engines more efficient by dis-

persing carbon, fighting corrosion and acids, and reducing foaming.

All this, in turn, means lower operating and maintenance costs for trucks and buses.

Ask to have a lubrication engineer set up a test of Phillips 66 Heavy Duty Motor Oil next to your present oil. For low-cost, heavy-duty lubrication and engine protection, standardize on Phillips 66 Heavy Duty. Phillips Petroleum Company, Bartlesville, Oklahoma.

Oil for the Engines of Commerce



PHILLIPS 66 HEAVY DUTY MOTOR OIL

"Keep Doors Closed"

Better instruct all drivers to keep truck doors closed when making deliveries. A truck of the White Fuel company in Lynn, Mass., was parked tight against the sidewalk unloading oil. The driver had swung up the rear drop-door of the truck to get out his hose and tools. The door juttied out flatwise about 4 ft from the truck and a foot into the crosswalk.

A 71-year-old man walked into the door and cut his head open. The Massachusetts Supreme Court said that it was dangerous to leave a thin, sharp edged, silver colored door in a horizontal position without someone to warn people about it, and the oil company was stuck with the damages.

And Speaking of Accidents . . .

Horses and wagons have collisions, too. Yearning for the good old days is a regular pastime of harassed modern executives, fleet managers who can remember the days of drays, one horse delivery wagons, and two dollar a day drivers like to recall what seemed like a permanently peaceful era. Their lawyers fondly imagine that before the invention of the internal combustion

CCJ LEGAL CORNER



engine road accidents were non-existent. But "twasn't so."

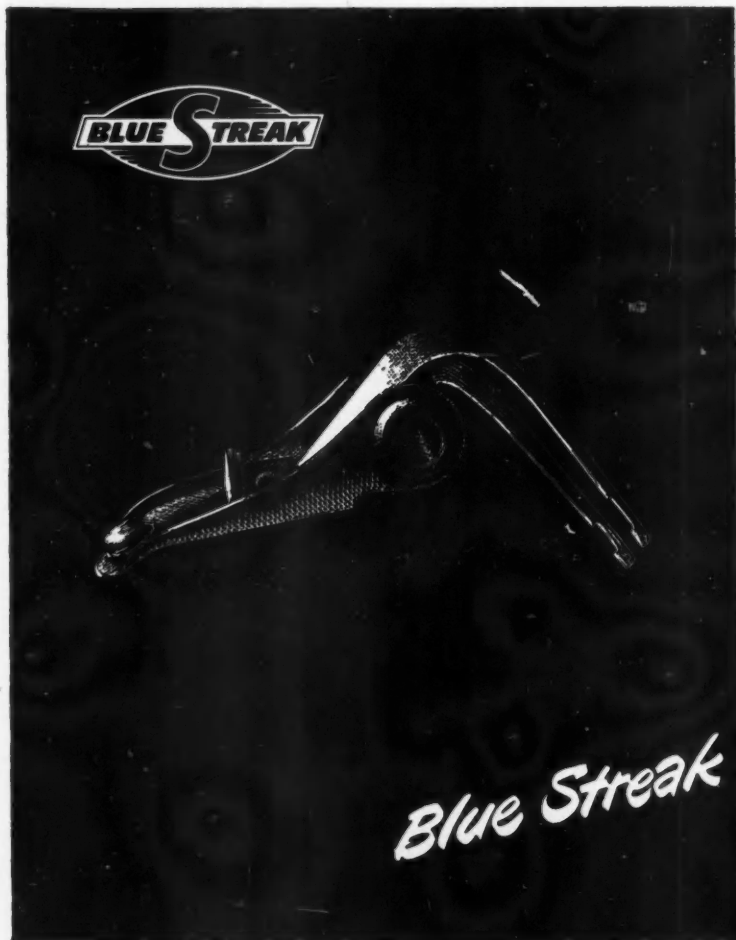
Only last May a horse-drawn milk wagon operated by Sidney Wanzer and Sons was the principal actor in a legal drama played before the appellate court of the state of Illinois.

William Boettcher was driving the wagon briskly along 67th Street in Chicago. He approached the intersection of Stony Island Avenue at about one mile an hour. The traffic light was red, and a big blue Cadillac was standing in the center lane. Someone came around the front of the car to get in

and the door of the Cadillac opened slightly. At the same time the light changed and Boettcher slapped the reins on the horse to keep her moving. His front wheel cleared the door of the Cadillac but the rear hub cap caught and tore the door.

To the Cadillac owner the accident was all the fault of the fleet vehicle. He was standing still and was hit. But Wanzer and Sons are stubborn; they still use horse-drawn milk wagons, and they don't give up easily. They refused to pay and when the case got to court proved they were right. They convinced the jury that the car door was opened between the time the front wheel of the wagon cleared it and the rear wheel struck it. They proved that a milk wagon is four feet wide and that this one was traveling in a straight line. The court ruled that opening a car door into a line of moving traffic is negligence and that the accident was the motorist's own fault.

The moral, if there is one, is that it doesn't make any difference what you drive, there is always going to be an accident, and while it is usually wise to buy your peace, it isn't necessary to pay too high a price as fleet vehicles are not always wrong.



When a contact or a coil or a voltage regulator on one of your vehicles conks out on the road, it costs expensive dollars, plus a lot of aggravation. It costs you only a few extra pennies to use a premium quality ignition part, like Blue Streak, but it's the best insurance you can get against premature ignition trouble. (P.S.—you may find that Blue Streak parts are a little harder to get these days, because premium grade raw materials aren't always available, but you'll be glad you made an extra phone call when you get the real thing.) Standard Motor Products, Inc., L. I. C. 1, N. Y.

*Blue Streak on the box means
Best in Ignition*



Power Steering

Continued from Page 66

necessary for all steering requirements.

The action of booster's hydraulic mechanism responds automatically to any movement of the pitman arm ball stud. Movement of the ball stud to the right moves the control valve to the right, directing oil pressure to rod end of the booster cylinder chamber producing a linear movement of the cylinder and attached drag link to right. Oil from head end of booster cylinder is directed back to oil tank.

Booster cylinder and valve body move to right until control valve again reaches neutral position. Further movement of control valve by steering gear is necessary to produce additional drag link movement. Booster action in opposite direction (to left) is produced when control valve actuated by pitman arm ball stud is moved to the left, directing oil to the head end of the cylinder.

A light spring centering device holds the control valve in the neutral position when there is no movement of the steering wheel. Oil circulates through control valve to tank while maintaining only enough pressure to stabilize the selected position of booster cylinder and vehicle wheels. The pitman arm stops prevent overtravel of pitman arm, and prevent excessive thrust and cramping of booster and steering linkage.

The integral relief valve governs the maximum operating pressure. When the system pressure exceeds the adjusted setting as a result of steering overload, the relief valve automatically opens, allowing the excessive oil under pressure to flow back to the tank. The relief valve can be adjusted to meet the maximum thrust required for any vehicle's steering conditions.

Garrison

THE GARRISON hydraulic powered steering booster, Fig. 4, is a steering aid that may be installed on vehicles at the time of manufacture or in the field with a minimum of alteration to existing equipment. The complete power steering booster kit consists of a high pressure hydraulic pump, V-belt driven from the engine, a reservoir tank, a control valve placed in the drag-link, and a double acting hydraulic power cylinder

mounted on the axle. The control valve is mounted in the drag-link. The forward or reverse movement of the pitman arm exerts a force against the drag-link ball socket which is directly connected to the valve piston. In this manner the piston shifts to open one port diverting flow to the pressure port cylinder and opens a discharge port on the opposite side of the cylinder. The action is exactly in reverse for steering in the opposite direction. The valve operates in response to the manual effort of the operator turning the wheel,

thus adding hydraulic power assistance to the manual steering effort.

The valve piston is maintained in the centered position by the combined forces of the centering springs on either end of the ball socket and the concentric hydraulic reaction rings located on either end of the piston, and is limited in stroke by the centering springs on either end of the ball socket. As long as the manual effort required does not exceed the resistance of the springs and hydraulic reaction of the valve, the

(TURN TO NEXT PAGE, PLEASE)



used by
leading
engine
builders

The very best you can use!



Power Steering

Continued from Page 155

valve piston will remain in its centered position and the steering "feel" will be the same as though no power assistance were employed.

With the piston in its centered position all ports are open and connected, permitting low pressure oil to flow unrestricted over both piston lands and return to the reservoir.

Whenever the manual effort exceeds

the resistance in the valve, the valve piston is moved against the combined centering force of the spring and the reaction ring. Any movement of the piston restricts the free flow of oil over the piston lands causing a rise in pressure and diverting the oil flow directly to one side of the cylinder. At the same time the port connecting the opposite side of the cylinder to the reservoir is opened.

As the vehicle rights itself when coming out of a turn, the manual effort required on the steering wheel is decreased, permitting the piston to be

shifted back to its centered position by the centering spring and reaction rings, thus giving the operator the desired road "feel," and the self righting characteristics.

Pumps are of the single cartridge, balanced vane type having a constant rate of delivery per revolution. Construction is such that the type of mounting, type of drive shaft, relationship of inlet and outlet ports, direction of rotation and pumping capacity may be varied to suit the particular need of the user. These pumps depend upon a competent source of rotary mechanical power to produce required flow.

Saginaw

EXCEPT for size, the Saginaw hydraulic steering gear used in 1952 passenger cars is basically the same type of unit that Saginaw has supplied for some years for heavy-duty earth-moving equipment and on experimental installations in heavy-duty trucks. Figs. 7 and 8. Designed to reduce steering effort but not lose the desirable effect of "feel," the power element does not come into play under light steering conditions which can be handled with four pounds or less effort on the steering wheel rim.

The mechanism is capable of factory calibration, for any given application, to meet a variety of steering effort requirements. Thus, manual steering can be calibrated within a desired range of effort on the wheel of three or four pounds or more, if desired; while the maximum effort on the wheel for power steering can be similarly effected. On current passenger cars, the manual effort is held within three to four pounds while maximum effort with power is held to seven to nine pounds.

The booster system consists of a pump capable of delivering oil at a pressure of 750 psi, an oil reservoir, a double-acting hydraulic cylinder, and a control valve. The control valve consists of a cylindrical spool with two annular

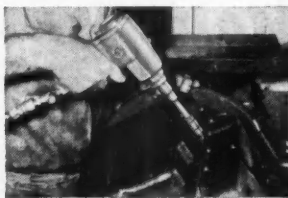
(TURN TO PAGE 158, PLEASE)



cut nut-running time 70%

with **CP AIR IMPACT
WRENCHES**

controllable power—
detachable angle heads



Write for
full
information



**CHICAGO PNEUMATIC
TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

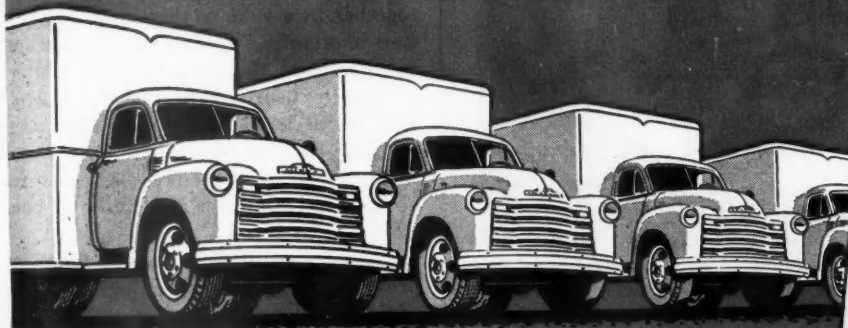


"Complaint No. 270538 investigated ... and it does seem that 'Sharp Curve' signs are needed two miles east of Shrimpsburg."

FLEET OWNERS...

*You're ahead
4 ways*

*when you deal with
YOUR CHEVROLET
DEALER!*



Your Chevrolet Dealer

is ready, willing and able to give you all four!

1

Expert help in
solving your
service problems

and

2

Availability of
a well-balanced
stock of precision-
built Chevrolet
parts that

3

Help reduce fleet
maintenance and
operation costs

and *thus*

4

Help keep your
Chevrolet trucks
out of the shop
and
on the road!

Power Steering

Continued from Page 156

grooves. It is carefully machined and ground to a sliding fit within the bore of the valve housing, the bore, in turn, having three concave grooves properly located with respect to the grooves in the spool. In what may be termed a neutral position of the valve, oil from the pump can circulate freely throughout the system at practically zero pressure.

However, if the valve spool is moved to the right, some of the passages within the valve housing are closed off and oil from the pump is directed to the left-hand end of the cylinder, forcing the piston and piston rod to the right. At the same time, oil from the right-hand end of the cylinder is allowed to return to the reservoir. The reverse of these conditions obtains when the valve spool is moved to the left.

With any given pump and cylinder, therefore, the speed of travel, force developed, and direction of travel of the piston rod, all are subject to com-

plete control simply by moving the valve spool by varying amounts and direction. Another feature is the bypass valve, designed to assure easy steering in the event of pump failure. This valve is built into the main control valve.

In addition to assisting the driver in steering the car, or turning the wheel with the car standing still, the whole system also acts in reverse movement. For example, if a shock load exceeding the 300-lb spring setting were encountered, movement of the valve would admit high pressure oil to the proper side of the hydraulic cylinder to resist the shock. Thus the driver is automatically relieved of most road shock, even under extremely severe conditions.

Gemmer

THE GEMMER "Hydraguide," Fig. 9, consists of two basic units: one, the standard worm and roller mechanical gear with a hydraulic power device and its valves built into the same housing; the other an engine driven Eaton Hydraulic oil pump, combined with an oil reservoir and filter and mounted on the engine. When the engine is not running the vehicle steers in the conventional manner.

The application of power to the steering is through two hydraulic pistons, operating in hydraulic cylinders arranged on either side of an auxiliary power arm which is attached to the shaft between the roller gear and pitman arm connected to the steering linkage. The piston heads are connected together by a yoke so they have straight line motion. To allow for accurate movement of the power arm, a roller on needle bearings is provided; steel pins in each piston bear against the opposite sides of the roller. Only when there is steering action, is pressure applied to this roller, and only on one side at a time.

Torque control of the power function provides for quick responsiveness. The slightest movement of the steering wheel turns the shaft and this torque is immediately translated into power steering.

The shaft from the steering wheel to the steering gear is not continuous. A flexible forked type coupling, cushioned in synthetic rubber, joins the steering wheel shaft and its extension in the steering gear housing. The extension shaft is mounted in a spherical bearing so its lower gear end can float several thousandths of an inch. However, the design only permits lateral movement of the gear end of the shaft. It is this movement which operates the valves that control the application of power.

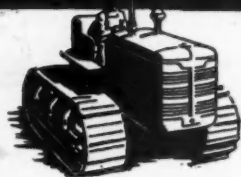
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Please Resume Reading Page 67

Mr. D. Cal.

the PF decal
merchandise, says:

**FLEET-ING
IMPRESSIONS STICK
WITH PF DECALS!**



PF truck decals, especially developed to withstand hardest abuse of wear and weather, give rugged service on railroad cars, planes, farm implements!



**PALM,
FECHTELER & CO.**
220 WEST 42 STREET
NEW YORK 18, NEW YORK

TRUCK and car fleets give double duty with PF decals on sides, doors, windows, and roofs of vehicles! The space is FREE . . . and the circulation is ALL AMERICA! So, get the maximum advertising mileage out of your vehicles with PF truck decals! Send in the coupon below for free booklet, samples, and information about free art and color testing service!

Please send me your FREE BOOKLET, "DECALWAYS TO SALES," free samples, plus information about your free art and color testing service.

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

CCJ 2

TDA BRAKES

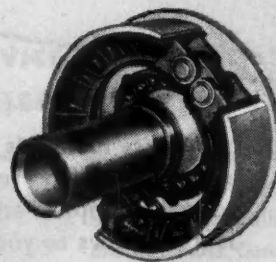
for any job -
anywhere-any time



No matter what your braking problem, there is a TDA Brake to do the job. When you equip your product—whether it is an industrial machine or a heavy-duty vehicle—with TDA Brakes, you are guaranteeing your customer safe, sure, dependable braking at bedrock maintenance cost. That's why TDA Brakes are demanded by users of heavy machinery everywhere today—so widely demanded that there are more TDA Brakes in actual operation on heavy-duty commercial vehicles than any other make. This universal acceptance has been

honestly earned. For more than 40 years, TDA's engineers have been designing and building brakes to do a superior job for the automotive industry. This experience is your assurance of outstanding performance, whenever you install TDA Brakes.

This air-actuated P Series power brake is ideal for the road-building equipment shown above and for all heavy-duty equipment. It is extremely versatile in itself but is just one of the many great TDA Brakes designed to solve your braking problems, no matter what type of machine or vehicle is involved.



TIMKEN *Detroit* BRAKES

TDA BRAKE DIVISION
THE TIMKEN-DETROIT AXLE COMPANY
ASHTABULA, OHIO.



WHATEVER YOUR BRAKING PROBLEM—TAKE IT TO TDA!

TDA BRAKE DIVISION—DEPT. 7B, ASHTABULA, OHIO

Please mail brake information on these applications:

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

Ventilating System for Paint Shop

Continued from Page 55

over the center sections have only four holes, while plates at the extreme end have 29. In between, the number of holes is graduated as shown in the drawing, in accordance with a special air-flow study made especially for this installation.

Similarly, the concrete ducts joining the trenches with the sump (for water) and the vertical stacks (for air) and

graduated downward to provide a uniform water flow. Note the drain pipe which takes water from the right-hand systems to the common sump near the upper center of the drawing.

On the roof, at the top of each vertical stack, there is a 15,000-cu-ft-per-minute fan, which exhausts clean air to the outdoors. Together, they provide an air flow of 30,000-cu-ft-per-minute,

or approximately one complete change every minute and a half. Air intake is through monitors in the roof which run the entire length of the bays. These aid almost as much as the graduated holes in the floor panel in preventing any concentration of air flow at any point in the room.

Trolley Barn Conversion

THE shop was remodeled from the entrance end of three bays in an old trolley barn. While they vary slightly in width, each is about 14 ft. The side lanes, big enough for one bus or one trolley, are 60 ft long. The center bay is 100 ft long and accommodates two buses at a time.

These bays were walled-in to make a completely separate dust-proof room with three overhead entrance doors. The trenches, fabricated in concrete, were installed before the new flush floor was laid.

The shop is heated entirely independently of the ventilating system; being supplied with fan-forced, recirculated air which has been heated and filtered through openings in the walls about 10 ft above floor level. Naturally, all electrical fittings are of the explosion-proof type and include newest fluorescent fixtures.

Obviously, an installation such as ours is most practical in the conversion of an old trolley barn where open space under the floor was already available for installation of the ducts. It also could be incorporated without undue expense in the construction of a new facility, and it is conceivable that it could be installed even in an old garage building.

As is always the rule, the proof of the pudding is in the eating. With our set up, our sprayers work in clean air and with clean surroundings all the time.

END

Please Resume Reading Page 56

Driver's Daffynitions

A wife is the person least appreciative of detailed data about the snazzy blonde hubby met last night.

CCJ

SCHOOL BUS . . . NOAH'S ARK WITH HYDRAULIC BRAKES.

CCJ

A boss is the one who gets hearty laughs from the corniest jokes.

CCJ

REARVIEW MIRROR . . . DEVICE FOR OBSERVING THE DESTRUCTION BEHIND YOU.

CCJ

A shot in the dark is something planned if clever, otherwise accidental.

CCJ

HIGHWAY . . . A NARROW BATTLEGROUND BETWEEN BILLBOARDS.

CCJ

Broadmindedness is a virtue or vice depending on whether it furthers one's objectives.



Because materials are short and costs are high... now, more than ever before, anything you can do to make supplies and equipment last longer is good news to your cash register.

This new booklet is full of ideas and suggestions on how to operate Sunnen equipment more efficiently, and make Sunnen supplies go farther. It can mean considerable savings in your shop.

Write for Your Copy of
"SUNNEN SERVICE HINTS"

SUNNEN PRODUCTS COMPANY

7907 Manchester Avenue, St. Louis 17, Missouri
Canadian Plant: Chatham, Ontario

627



MAKING TOUGH JOBS EASY

● For those rough, tough jobs that make conventional-drive trucks bog down and quit, you can't beat Marmon-Herrington *All-Wheel-Drive* Fords.

Here are high-speed, high-performing trucks with crawler-tractor lugging ability—as much at home off the highway as on. Here are trucks that stride through deep mud, sand and snow, up steep hills and mountain grades—and do it with amazing speed, ease and economy.

No matter what your work involves, you'll find a Marmon-Herrington *All-Wheel-Drive* Ford exactly right in power and capacity. Available in 30 versatile models, ranging in G.V.W. from 5,300 lbs. to 35,000 lbs. Four great engines—101 and 112 hp. Sixes; 106 and 145 hp. V-8s.

See for yourself why Marmon-Herrington *All-Wheel-Drive* Fords are today's biggest-selling multiple-drive trucks—biggest-selling because they deliver top performance at lowest cost. Ask your nearby Marmon-Herrington dealer for an on-the-job demonstration.

MARMON-HERRINGTON COMPANY, INC.
1521 W. Washington Street • Indianapolis 7, Indiana

SERVICE AVAILABLE AT FORD DEALERS EVERYWHERE...



Marmon-Herrington *All-Wheel-Drive* Fords are, for the most part, built of standard Ford Parts. Consequently, fast, efficient, low-cost maintenance and repair service is available at Ford dealers everywhere. When, occasionally, special parts are required, they are quickly obtainable through Marmon-Herrington distributors, conveniently located in principal cities the world over.

MARMON-HERRINGTON

All-Wheel-Drive

FORDS



Associated Adds Humor To Safety

Developing a whimsical safety campaign is quite a task, but Associated Transport, Inc., New York, has come up with a new one. It uses a negative approach—discouraging membership participation!

A "club" was formed among Associated's drivers who were involved in fixed-object accidents, from which the name FOA came. Best told by their accident prevention department, "You'd think that an outfit like the FOA Club would have a hard time getting members, but at A. T. alone about 60 per cent of the drivers involved in vehicular accidents every month automatically become members in good standing. And when they join up, they cheat the other fellows at their terminal of the Quarterly Safety Award Dinner."

The department then lists a few suggestions which will keep the drivers from hitting "things that are standing 100 per cent still." They include:

"Never back your unit without first checking to see that the way is clear.

"Don't try to squeeze through a tight place without first making sure of your clearance.

"Never enter an underpass or other overhead construction without stopping first to determine clearance. Then move slowly so that you can stop before causing serious damage.

"Never turn right or left without doing so from the proper traffic lane and until you are positive such turn can be made without striking vehicles parked at the curb.

"All you have to be, to join the FOA Club is a horse's tail . . . and all you have to do to stay out of the outfit is use good, common horse sense."

The Prize Nobody Wants

Pacific Intermountain Express, Oakland, Calif., has a prize competition designed to reduce personal injury accidents in the company offices and shops. One person receives the honor every three months and is required to display the trophy in a prominent spot in the department until another winner is selected for the following month. The contest is for having the MOST accidents, and the trophy is a 6 in. eight-ball. It is one honor which the safety director, Kenneth N. Beadle, hopes will spur efforts on the part of various supervisors to keep from winning.

for
LOWER UPKEEP COSTS
Specify **HANSEN**



SIMPLE design—easy application—strong, durable construction—give Hansen Hardware its ability to stand up under severe service conditions.

Hansen products illustrated include:

No. 10 Continuous Hinge. Made in standard 12-inch lengths. One length provides hinges of all lengths. Made of .078 gauge steel. 1/4" hinge pin. Wt. 1 1/4 lbs. ea. 12" unit. 12 units per box.

No. 60 Extension Lock. Made in one piece. No loose parts. 1 1/4" hardened striker bolt. Matched rosettes. Strong. Neat. Attractive. Size, 5" x 10". 5" handle. Wt. 2 5/8 lbs.

No. 85 Window Regulator. Straight-up lift. No sticking or jamming. Easy, fast operation. Endless chain. Right- or left-hand application. Crank or wing types. Five lengths, 22"-30".

No. 125 Slam-and-Take-up Lock. For side or rear double doors. Left-hand side includes bolt with hook. Right-hand side of lock includes striker bolts, center mechanism and 26" rods. Flush or offset bolts, as specified.

Lower upkeep invariably comes from using Hansen Hardware—often lasting longer than the body on which installed.

**REQUEST CATALOG GIVING
COMPLETE INFORMATION**

A. L. HANSEN MFG. CO.

5047 RAVENSWOOD AVE., CHICAGO 40, ILL.



better heavy-duty motor oil



Greater protection for your harder-working engines

• New and better STANOLUBE HD-M Motor Oil is an improved additive-type lubricant that combines more effective detergent-dispersant action with greater oxidation stability. Result: greater protection for commercial and military trucks, busses, and construction equipment ...greater protection for your harder-working engines.

More effective detergent-dispersant action and greater oxidation stability, proved by laboratory tests and confirmed in extensive field service, mean that engines stay cleaner under the toughest of operating conditions. Freedom from deposits means less engine wear, longer periods between overhauls, and lower maintenance costs. New STANOLUBE HD-M also offers the

same bearing corrosion resistance and freedom from foaming which helped make STANOLUBE HD a preferred lubricant for heavy-duty applications during the past nine years.

Your nearby Standard Oil service-supply center stocks STANOLUBE HD-M for fast local delivery. This service-supply center is headquarters for your Standard lubrication specialist. Call him today. Or write: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY



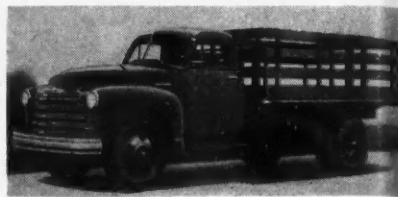
(Indiana)

Chevrolet Introduces New Series

▼ THE 1952 Chevrolet trucks in the 22 series on 10 wheelbases and with gross vehicle weights ranging from 4100 to 16,000 lb were introduced in January. The line stresses operating economy, with improved driver comfort, safety and handling ease.

Important among the improvements is more efficient carburetion which pro-

vides for smoother performance during the warm up period. Refinements to carburetion include a better sealing through a thicker air horn flange and strengthened screw bosses; elimination of possible vapor lock in main fuel nozzle by redesign of the passage; more consistent hot idling by revisions in the idle system and accelerator pump;



Powered by 105 hp engine, this heavy-duty job with stake body offers a GVW of 16,000 lb in a wide range of wheelbases

smoother acceleration through removal of the accelerator pump outlet from the air horn to the top of the float bowl, thus providing a shorter fuel passage.

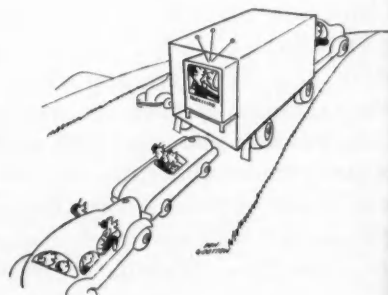
Redesigned cab door lock pillars and newly positioned striker plates permit the use of push button door locks. An optional outside lock for the left door permits entry to the cab from either side. Seats have a new spring construction. Increased visibility, better ventilation and wide, adjustable seats provide for driver comfort and driving safety.

The 92 hp Thriftmaster or the 105 hp Loadmaster engines power the line.

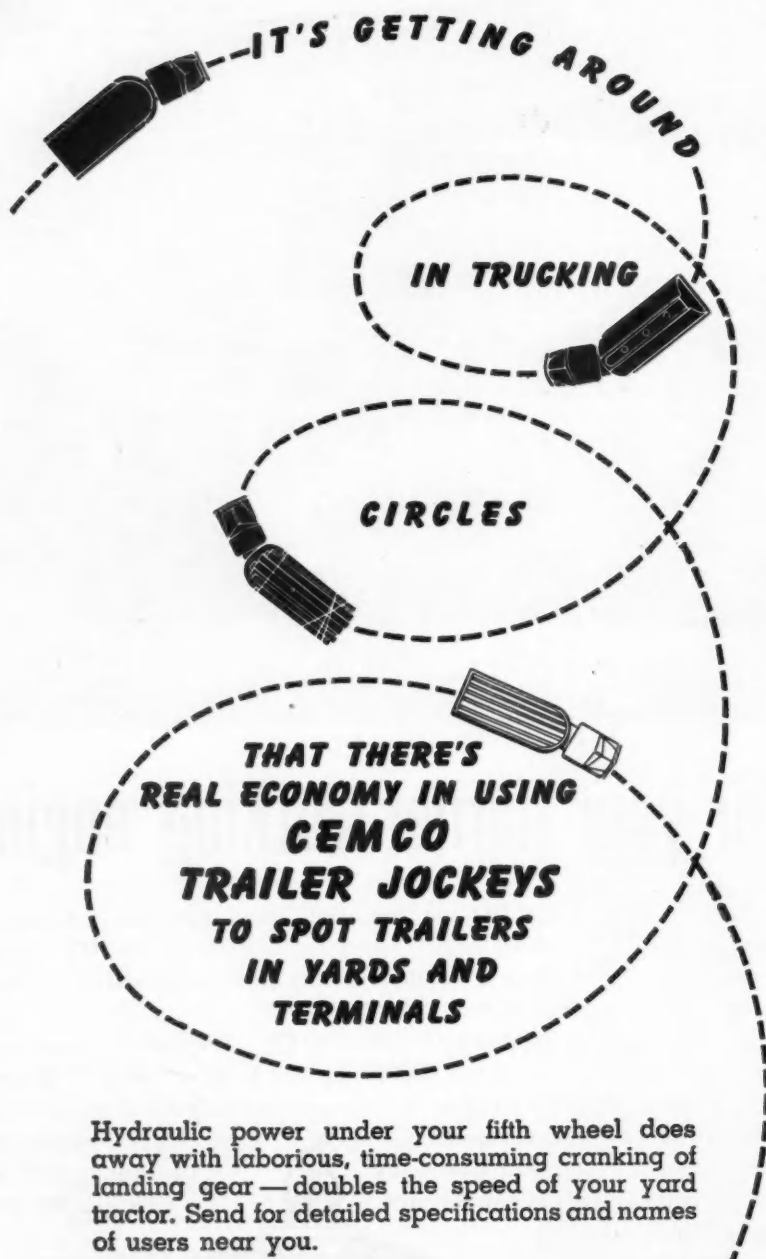
Willie's Fish Story

Willie E. (for Elmer) Doubleclutch places a bandage on the finger of Jason Q. Loudmouth after they have been involved in a minor accident. Willie was at the wheel of his tractor semi, when Mr. Loudmouth jumped a signal in his old sedan.

This scene is one of the high spots of the film "Willie's Fish Story," which tells what happens to Willie after the accident because he makes the mistake of talking a little bit too much at the scene. The film is 15 minutes in length, and is in full color cartoons. Made on 35mm sound slide, it was produced by Rinaldo-Hill Enterprises of Hollywood under the sponsorship of the Motor Truck Assn. of California. Prints are available from the producers. For information write to Rinaldo-Hill Enterprises, 6926 Melrose Ave., Hollywood 38, Calif.



"TV keeps 'em entertained on the hills.



CEMCO INDUSTRIES, INC. ●
GALION, OHIO

Allied
A.P.C.
VALVES

American
Brakeblok
BRAKE LINING • CLUTCH FACINGS

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PARTS FOR FORD
CHEVROLET • PONTIAC
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New Britain
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PISTON RINGS

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URGEAL RETAINERS

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Thomson
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UNITED
PUMP
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SPEEDOMETER AND
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WISCONSIN
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ZOLLNER
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Your NAPA Jobber
is a Good Man to Know!

Any doubts? Here's proof:

Even in times like these, there are some things you can count on—for sure. One of them is what to expect when you make your NAPA Jobber your source for parts and supplies.

● **QUALITY PARTS:** "Equal to or surpassing in quality the parts they replace" . . . that statement of policy has governed every NAPA line since NAPA began.

● **BROAD COVERAGE:** The lines your NAPA Jobber stocks will meet the vast

majority of your requirements for cars, trucks and buses of all makes and ages.

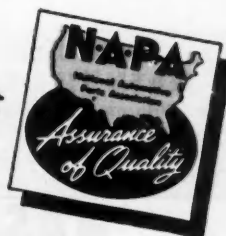
● **FAST SERVICE:** In addition to his own stocks, the NAPA Jobber commands master stocks of every line in the nearby NAPA Warehouse. Emergency orders get into your hands *fast*.

● **COOPERATION:** Your NAPA Jobber will be glad to go over your fleet and its requirements in detail. He will work with you in every way to get you the genuine quality parts you need—when you need them.

All these advantages become your advantages when you concentrate your purchases with your NAPA Jobber. Think about it. Call your NAPA Jobber *now*.

NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT 1, MICHIGAN

NAPA is the largest
Independent Parts Organization in the Industry!



Ford Has Three New Engines

Continued from Page 71

F-5 and F-6 school buses. The Big Six drives the F-6 truck and F-6 C-O-E.

The 145 bhp V-8 is supplied exclusively for F-7 trucks up to 38,000 lb GCW; while the 155 bhp V-8 is reserved for the F-8 big jobs up to 41,000 lb. GCW.

Conventional truck models are available in all eight series. In addition, special purpose units include: F-3, F-5,

and F-6 parcel delivery truck chassis; F-5 and F-6 C-O-E, and F-5 and F-6 school bus chassis. Ford trucks also offer a wider range of rear axle ratios and a greater selection of special equipment than was available heretofore.

The newly styled Courier all-steel panel delivery model features passenger car performance, economy, comfort, and riding and handling characteristics.

Ride control combines low center of gravity, diagonal rear shock absorber mounting, spring suspension tailored to weight, wide front tread, and stabilizer bars. It provides a choice among six power combinations—an option of two passenger car engines with either of three transmissions: the conventional three-speed synchromesh, overdrive, or Fordamatic.



The Courier has one rear door and two side doors, contains about 100 cu ft of loading space. Loading area is 6½ ft long, 4½ ft wide, and 3¼ ft high. The rear door, held open by a door check, is 45 in. wide and opens to a full 90 deg.

Three new lines of Ford passenger cars for 1952—Mainline, Customline, and Crestline—in a series of 18 models have been announced. These lines also include a group of three station wagons one of two-door, 6-passenger type; and two, four-door, 8-passenger styles.

END

Please Resume Reading Page 72

Fruehauf Receives Honors

Fruehauf Trailer Co. has been awarded a Certificate of Management Excellence for 1951 by the American Institute of Management. The Institute is a non-profit foundation devoted to the study and improvement of corporate organization and management.

In deciding which companies are entitled to the award, the Institute stated, credits are given for excellence in ten separate fields: economic function, corporate structure, health of earnings growth, fairness to stockholders, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor and executive evaluation.



"I hope you weren't too severe with him, Herbert."

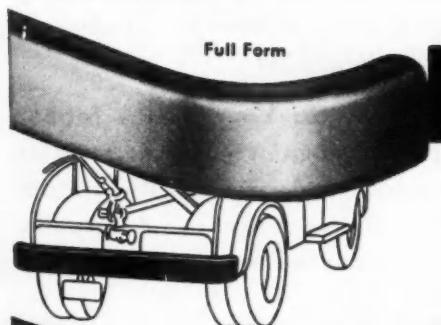
NASH BODY-GARD BUMPERS

are 3 ways better!



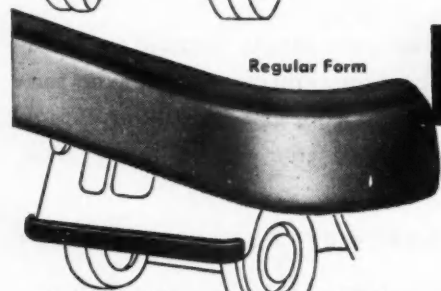
Body-Gards
PROTECT

High tensile steel and channel type construction combine maximum protection, strength and durability with minimum weight.



Body-Gards
FIT

To fit your vehicle, front or rear, Body-Gards are made in any length you specify, in any one of the three styles shown and in five face widths.*



Body-Gards
SAVE

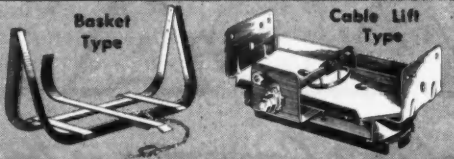
By their economical cost and by the repair bills they prevent, Body-Gards help reduce vehicle operating costs.

*Five Face Widths 3¼", 4½", 5½", 6" and 6¾" wide.

Body-Gard Bumpers custom built for your truck, bus or trailer are easy to order.

Write for information, now

Ask For Details on
NASH TIRE CARRIERS
For Original Equipment or Replacement. The complete Nash line includes the right tire carrier for every type of commercial vehicle.



NASH BROS. COMPANY

PAYNE STREET AND DEWEY AVENUE • EVANSTON, ILLINOIS
SEE YOUR EQUIPMENT SUPPLIER OR WRITE DIRECT FOR FOLDER

"give me the
green jack..."



HEIN-WERNER

hydraulic jacks are powerful....



You hear it in shops . . . and on the road—wherever a good jack is needed—men who speak from experience say "give me the *green jack*" . . . They refer to the Hein-Werner Hydraulic Jack, known by so many as the "green jack" because of the distinctive green color of all H-W under-axle jacks.

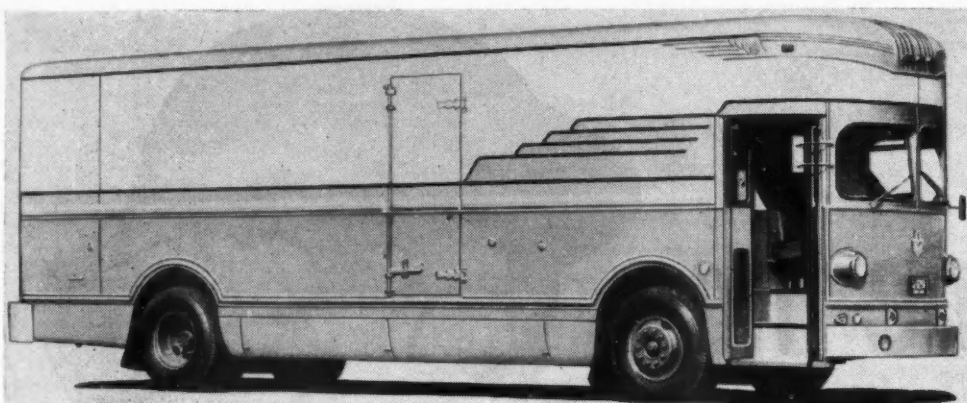
These jacks are powerful . . . they have the lifting power equal to the combined strength of hundreds of strong men . . . These jacks are fast, easy, and safe to operate . . . Jack can't lower accidentally as handle must be removed from pump to open release valve.

Made in models of 3, 5, 8, 12, 20, 30, and 50 and 100-tons capacity . . . Complete line also includes "Bumper-Lift" Jacks for passenger cars, "Swift-Lift" and Service Jacks for shop use, and "Push and Pull" Hydraulic Jacks for body, fender and frame repair work.

Ask your jobber or write us for details.



HEIN-WERNER CORPORATION • Waukesha, Wis.



Twin Coach Bulk Van

Twin Coach Co. has announced a new bulk-load delivery truck to be known as its Fageol Super Freighter, "Manhattan Express."

The 33 ft. (over-all length) model, as illustrated, has a vehicle net weight of 15,000 lbs. It contains 1710 cubic ft. of cargo space and has maximum payload capacity of 15,000 lbs. Width is 8 ft.; height, 11ft., 6 in. Turning radius is 33 ft., 10 in. Other models are available in lengths of from 28 to 40 ft. Body designs, door locations and sizes, cab dimensions, etc., are subject to a wide variety of optional treatments depending upon needs of individual operators.

3-Cylinder Diesel

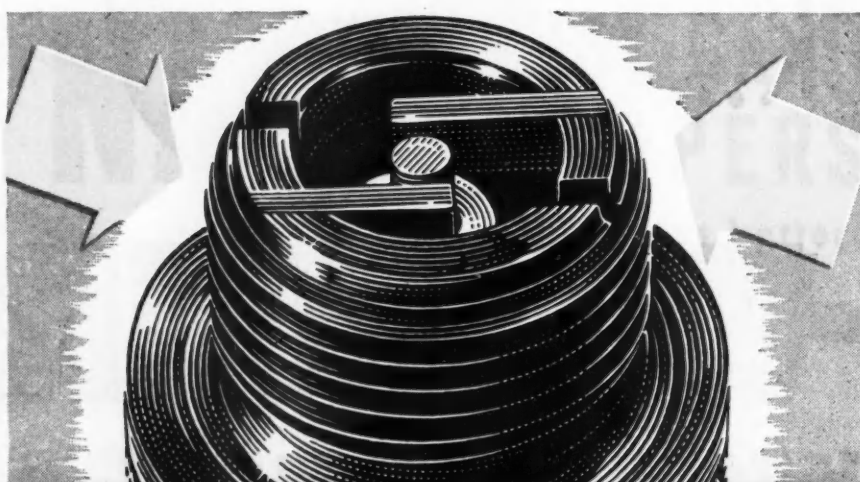
Continued from Page 67

tons. Brake control is achieved through the customary foot pedal and hydraulic master cylinder, which operates the air control valve to provide regulated pressure. The air system comprises an engine-mounted compressor of $7\frac{1}{4}$ cu ft capacity, pressure governor, and two air tanks. Trailer air brake connections and hand control valve are available for tractors. Advantages of the air actuated hydraulic system are: 1. Air braking power combined with the brake "feel" of pedal controlled hydraulic system. 2. Fast, positive brake actuation. 3. Physical brake application is possible before air pressure builds up, or in the event of air pressure failure.

Shift control on two-speed axle equipped models is by means of an electrically operated mechanism, the axle control button being conveniently mounted on the transmission gear-shift lever. Movement of the button up or down controls electric current to the motorized axle shift unit. Particularly important in hilly operations is the quick, positive control and independence of vacuum or air supply systems.

END

Please Resume Reading Page 68



DOUBLE ELECTRODES OUT OF THE FLAME SWEEP

for double the life!

The revolutionary new Hastings Spark Plug gives you two ground electrodes, and they are *shrouded*—completely protected from the path of the flame. This means less fouling, less electrode erosion, better performance and much longer life.

Hastings gives you many other exclusive features: an H. T. aluminum oxide insulator, which transfers more heat, a solid copper non-loosening

gasket, a wider heat range and a wider gap setting.

Every Hastings Plug is X-ray inspected, high voltage tested and Performance Rated to give you the right plug for every job. Write for illustrated catalog. Spark Plug Division, Hastings Manufacturing Co., Hastings, Michigan. Spark Plugs, Piston Rings, Oil Filters, Casite, Drout.



HASTINGS

Aero-type Shrouded

THE DOUBLE-DUTY SPARK PLUG FOR HEAVY DUTY USE

Trailers Help to Blend Juices

V NEW RADIO-DISPATCHED capacity bulk fruit trailers have solved a major production problem for the Juice Industries Division of Clinton Foods, growers and packers of "Snow-Crop" Brand frozen juice concentrate. Two huge Snow-Crop plants process over 40,000 boxes of citrus a day, brought from company owned groves scattered over the four corners of Florida's large citrus belt.

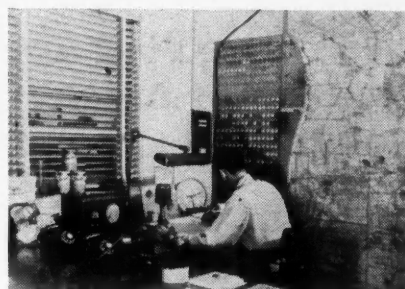
Frozen concentrate is made from tree-fresh fruit which must be carefully selected and properly blended for acidity and sugar content to maintain the flavor and essential uniformity of the concentrate. This necessary blending of different types of oranges gave rise to a serious production problem. It became necessary to insure that the right type of oranges were delivered in sufficient quantity to the right plant at the right time.

Too many oranges, or fruit of the wrong type, means that trailers have to wait to unload, thereby tying up drivers and equipment, and holding the oranges in the trailers for too long a time. Plants waiting for oranges means excessive waste in stand-by time for both men and processing facilities. Too many, too few, or the wrong type . . . all add up to high production costs. To complicate the matter, much of the groveland is not served by telephone, making it virtually impossible to maintain contact between groves and plants.

To control the movements of citrus from the tree to the plants, in the right quantity, at the right time, Snow-Crop bought a number of heavy-duty Great Dane Trailers, each with a capacity of 500 field boxes of oranges. Then they equipped each Mack tractor pulling these super-trailers with two-way radio

and constructed two radio stations seventy miles apart, which enabled the driver of each tractor-trailer to maintain voice radio contact with a central dispatcher at all times.

During the season, the central dispatching station is manned twenty-four



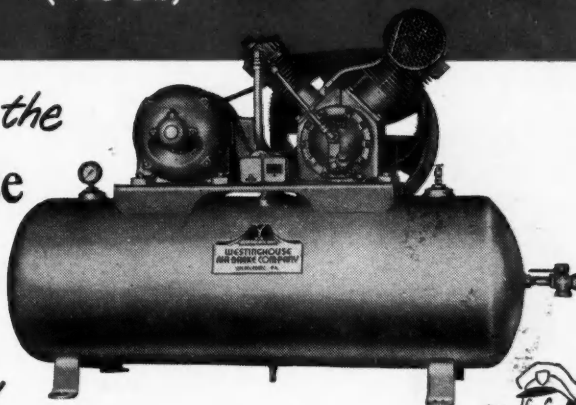
hours a day by skilled dispatchers, who are the key men in the new operation.

(TURN TO PAGE 176, PLEASE)

This Compressor won't take N.O.* for an answer

(No Oil)

that's why the
Westinghouse
"Y"
saves repair
bills for you!



When it's a question of lubrication, this Westinghouse "Y" Compressor won't take N.O. (No Oil) for an answer. If the crankcase says "No Oil" the "Y" Compressor says "No Air". It sticks to its demands, too—which is why users don't get stuck with big repair bills. In many busy garages or service stations, where compressor lubrication may be overlooked, this one feature is one of the best "life assurance" policies your compressor can have. NO OIL—NO AIR protection calls immediate attention to the oversight, which can be corrected before you have to pay expensive repair bills.

You'll find too, that the "Y" offers all the usual modern features—two stage compression, air cooled design, pressure lubrication, automatic pressure control—that mark any quality compressor, PLUS the three protection features listed at right. Finally, it's big,

Only the
Westinghouse "Y"
gives you ALL THREE

Low Oil Level Protection—No Oil—No Air, bans wear and repair.

Thermal Overload Protection—Standard, at no extra cost, on the "Y".

Starting Unloader—Compressor remains unloaded till speed and oil flow are normal.

rugged and husky . . . designed and built to give you years of dependable service.

For extra assurance and economy, install the Westinghouse "Y" Compressor. They are available with displacements from 6.2 to 68 cfm. Motor capacities from 1½ to 15 hp.

Westinghouse Air Brake Co.

Industrial Products Division—WILMERDING, PA.
Factory Branch: EMERYVILLE, CALIFORNIA

ASK FOR
BULLETIN
IDC 9302-3.

DISTRIBUTORS THROUGHOUT THE UNITED STATES . . . CONSULT YOUR CLASSIFIED DIRECTORY
DISTRIBUTOR IN CANADA: CANADIAN WESTINGHOUSE CO., LTD., HAMILTON, ONTARIO



"Yeah, another baby. Take a cigar and give whatever you can spare."

**SPEED YOUR JOBS
WITH THESE BEHR-MANNING
BODY SHOP NEEDS**

**SPEED-WET* and METALITE®
FIBRE DISCS**



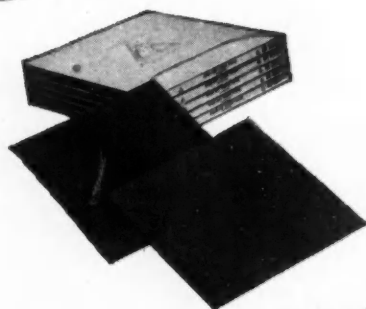
Fast and cool-cutting. Famous METALITE Discs available in both OPENKOTE® and CLOSEKOTE®. Complete range of grits and sizes.

**BEHR-DISKER* SANDING PAD
ASSEMBLY**



Ideal for feather-edging on curved or flat surfaces. Uses paper or cloth discs held by patented slip-nut which permits disc to stop rather than tear under pressure.

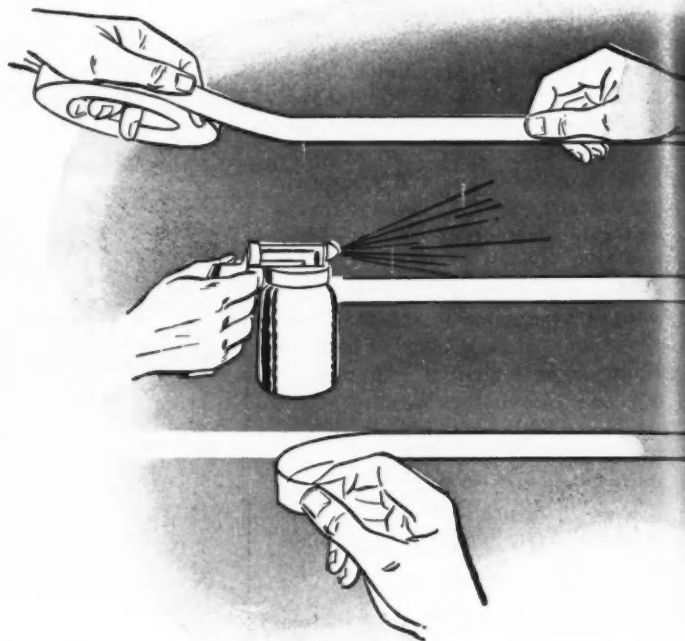
SPEED-WET® DURITE® PAPER



100% waterproof paper, best for all types of wet sanding. Its abrasive is hard, sharp, enduring silicon carbide, available in a complete range of grits and backings.

* Trade Marks

Everything you want



Behr-cat

BRAND

**BEHR-CAT
ADHESIVES
and SEALERS**



Complete line of adhesives, fillers, sealers, caulking compound, for all body shop needs. High quality products for satisfactory body repair.



Want in a masking tape!

GOES ON EASY

GIVES CLEAN EDGES

COMES OFF EASY

masking tape



It's all a matter of nice balance in a masking tape that's just "tacky" enough to make a firm bond, but not too tacky to prevent easy strip-off. It has a bond, too, that grips all over, preventing sprayed paint from running under it anywhere. The tape, while very strong, is thin enough to prevent build-up of color along the edges. Backing is crepe paper, which allows it to shape to contours.

BEHR-CAT Masking Tape No. 111 is well adapted to all body shop repaint applications and is very satisfactory under the heat of forced drying.

• **Get this handy body shop reference booklet** giving full data, sizes, and body shop net prices on all BEHR-MANNING automotive products. Write today for your free copy to Dept. CJ-2.

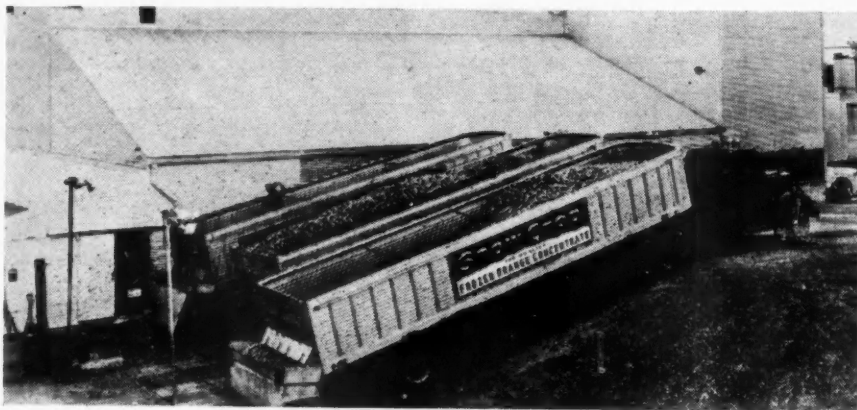


BEHR-MANNING

division of NORTON Company

▲ COATED ABRASIVES
▲ SHARPENING STONES
▲ PRESSURE-SENSITIVE TAPE

Main Office and Plant Troy, N. Y.
Canada: Behr-Manning (Canada) Ltd., Bramford, Ont.
Export: Behr-Manning Overseas, Inc., New Rochelle, N. Y.



Trailers Help Blend . . .

Continued from Page 173

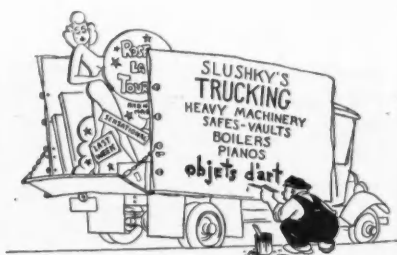
Several hundred trailers are dispatched to the groves each day, and maintain contact with the dispatcher, who records the movements of each trailer on his master map. When the trailers are loaded at the groves, the driver calls the dispatcher on his cab radio. By a carefully controlled production schedule the dispatchers are kept advised of the need for fruits at the plants, and they, in turn, order the driver to proceed with his load to the proper plant. Should the need arise, the dispatcher can call the driver of any load and switch delivery, in transit, to another plant. By careful timing and planning, the fruit arrives at the plant at the time the plant needs the load, and unloads promptly, cutting turn-around time to a minimum.

Smoothness and efficiency of operation, both in the groves and the plants, have been greatly increased by central dispatching, plus radio controlled high-capacity trailers. During the season, sixty loads per day per trailer are delivered to the plants, seven days per week, three hundred thousand miles per month.

Initial costs were high, but the investment is a self-liquidating one. Clinton Foods is proving that larger loads by radio-controlled truck-trailers will pay for themselves many times over in increased efficiency and lower production costs.

Automatic Drivers Come Next!

It is reported that some type of automatic device for dimming headlights on passenger cars may appear as early as 1953 models. Naturally, if successful, such a device could be extended for truck use. Over the long term such a successful unit might take the route of other safety developments such as safety glass and turn signals which are optional at first and later become standard through legislative requirements. A big drawback, of course, to such a dimming device is that it primarily aids oncoming motorists but is of little help to the operator of the dimmer-equipped vehicle if others do not have it.



**SIMPLIFIES
EQUIPMENT
MAINTENANCE**

**REDUCES
LUBRICANT
INVENTORY**

**ALL
WEATHER
ALL
PURPOSE**

**ONLY
LUBE THAT
MEETS S. A. E.
80-90-140
GRADES**

**THREE STAR
KENDALL
GEAR LUBE**

Fortified to Prevent Rusting
and Foaming.

Meets Military Specification
MIL-L-2105
and Timken Specifications
0-64 and 0-65.

**THERE'S A KENDALL LUBRICANT
FOR EVERY REQUIREMENT**

KENDALL REFINING COMPANY
BRADFORD, PENNA.

Sure Steps to PROTECTION!



Volunteer Firemen try to extinguish a blazing oil truck, one of two that collided and burned in Barrington, Ill., Oct. 9, 1950. The drivers of both trucks were burned to death.



CARBON DIOXIDE FIRE EXTINGUISHERS

In emergencies like this, quick action with Buffalo CO₂ Extinguishers can save lives and property by stopping fires when they start. "Quick action" is sure when your vehicles are equipped with Buffalo CO₂ Extinguishers because the Squeeze Grip Valve is so simple and easy to operate. Simply, pull the safety lock pin and squeeze! Clean, dry, odorless, inert gas under high pressure snuffs out flames in seconds!

Buffalo manufactures a complete line of fire extinguishers for positive protection from every fire hazard. Order Buffalo fire protection today! Consult your Classified Telephone Directory or write for your nearest Buffalo dealer.

UNDERWRITERS' LABORATORIES AND FACTORY MUTUAL APPROVED

BUFFALO FIRE APPLIANCE
CORPORATION
DAYTON 1, OHIO

MAINTENANCE
REPORT



HOW CAN 75% OF VALVE PORT CRACKS Be Prevented in Rebuilt Engines?

"HUNDREDS OF FLEET OWNERS have proved the answer to this one," says "Pete" Peterson, "whether operating big trucks on hard and fast runs, or small trucks with a lot of starting, stopping and idling. By careful study of their engines after thousands of miles of travel they have found the . . .

MAIN CAUSES OF VALVE PORT CRACKING ARE:

1. Extreme pressure caused by varying expansion of different materials when using pressed-in valve seats.
2. Uneven expansion, due to variation of metal thickness, around valve ports of engines having no valve seats.
3. Movement and distortion of valve ports in "L" head engines cracking from valve port to thinner cylinder walls when pressed-in valve seats are installed or after reboring.

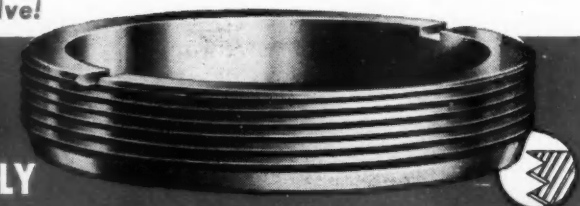
STRESS-RELIEVE THIS AREA WITH P-B!

Stays Round—Cools Valve!

Made of tough chrome-nickel-iron, individually cast under pressure. Unlike pressed-in seats, P-B Screw-In Valve Seats retain their original dimensions, won't buckle and come loose, can't tilt and cause hot spots and valve burning, and allow for perfect seating of valve on every stroke.

ONLY
THE

P-B SCREW-IN VALVE SEAT
WITH EXPANSION CLEARANCE



Has Expansion Clearance BUILT-IN TO ELIMINATE VALVE PORT STRESS!

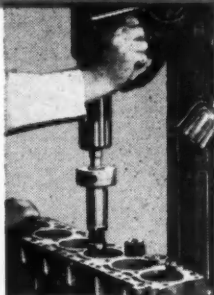
1. P-B Screw-In Valve Seats never distort from high exhaust gas heat. That's because the clearance needed for expansion was allowed for when the special threads were machined. The small inset above shows how the *top surfaces* of the threads are in constant contact with the block. They lock the seat in position and give *more* surface contact for fast heat dissipation than pressed-in valve seats can. But notice the *bottom surface* of the thread. It touches the block *only when fully expanded*.
2. P-B Screw-In Valve Seats can end valve port troubles in engines built without seats. The P-B seat does the expanding; high stresses do not reach the head or block.
3. P-B Screw-In Valve Seats eliminate 85% of cracks from valve ports to cylinder walls . . . could eliminate 100% if installed before cracks start. Good laced-up cold welds, however, will not open up when P-B Screw-In Valve Seats are used.

AMAZING PERFORMANCE

- GIVES NEW ENGINE Valve Mileage.
- ELIMINATES 75% of valve burning, sticking and breaking. Seat stays tight in counterbore, can be reground with just a touch of the stone because it stays round. Can be replaced in same threads without oversize.

Contact your P-B Master Shop today for installation. Located in all major U. S. cities, these top-notch automotive machine shops stand ready to help you solve your toughest valve problems. Write today for previous maintenance reports, further information on valve troubles, and the name of the P-B Master Shop nearest you.

Leader for 20 years in head and block valve port welding procedures



P-B drill press unit for production installation. Also available HEAVY DUTY PORTABLE unit for jobs in or out of chassis—up to Diesel locomotives.



Special 8 and 12 fluted CUTTER and TAP makes only precision counterbore in replacement field and machines in expansion clearance between threads.



SCREW-IN SEAT WITH
EXPANSION CLEARANCE

PETERSON WELDING LABS., INC.
Dept. C-2 1423 Virginia Kansas City, Mo.

PETERSON-BURTON copyrighted in the U.S. and Canada by the Peterson Valve Seat Corp., Toronto, Canada

DualRangeTransmission Smooths Out Driving

The new Dual-Range Hydra-Matic transmission introduced by Pontiac at the end of the year provides a choice of two high driving ranges at the option of the driver. The highway driving range, the "DR" position at the left on the control, brings into play the usual four-speed transmission range. This range, coupled with the economy rear axle, reduces engine speed at high road speeds, reduces noise, and is said to improve fuel economy.

When the selector lever is moved into the right hand "DR" position, it brings into play only the first, second, and third speeds, through a suitable change in the control valving. This range is recommended for ordinary city driving in heavy traffic, for improved uphill climbing, better downhill braking, and in general where high acceleration is desired.

The familiar kick-down feature for passing and emergency acceleration operates in both "DR" ranges to provide an extra measure of safety on the road.

The "Lo" position, usually reserved for operation on icy roads, on snow or sand or mud, is arranged to use second gear rather than first gear. However, even with this new control, kick-down at speeds below 10 mph will cause a shift to first gear.

In addition to changes in valving and control to effect the operations described above, detail changes have been made to make the overall operation of Hydra-Matic smoother than before. One of the improvements designed to facilitate "rocking" is the introduction of a new exhaust valve in the rear servo mechanism, which promotes easier and faster changes from "Lo" to "R." Another item of interest is that the new Hydra-Matic now is identical for both sixes and eights.

Safety Awards to Continue

The annual awards made by the National Council of Private Motor Truck Owners Inc., Washington, D. C., will continue for 1952. The awards have been made each year in the form of a "Gold Seal Certificate of Accomplishment" for a 100 per cent accident-free record, a "Red Seal Certificate of Merit" for a 40 per cent reduction in accident frequency, and a "Green Seal Certificate of Progress" for a 20 per cent reduction in accident rate. All that is needed is a frequency ratio of accidents for one calendar year as compared with the year previous. Other miscellaneous information is also asked for on the official application blank obtainable from the National Council.



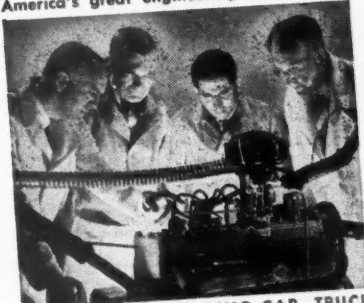
RAW MATERIAL TESTS . . . all materials must measure up to predetermined standards before they are released to production.



ENGINEERED SPECIFICATIONS . . . scientifically developed. Nothing left to chance. High quality assures dependability.



CONTINUING IMPROVEMENTS . . . by the foremost engineers working in one of America's great engineering laboratories.



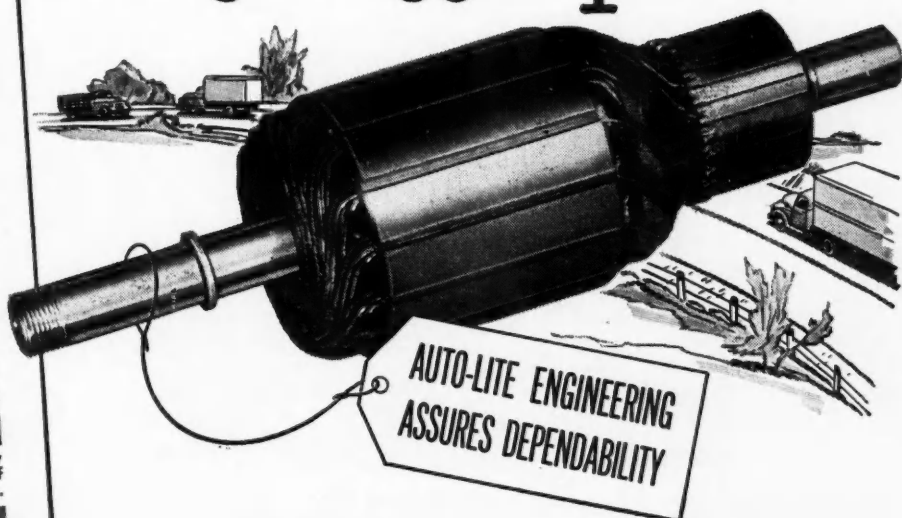
APPROVAL OF LEADING CAR, TRUCK AND TRACTOR MAKERS . . . as original equipment, after most searching tests.



FINISHED PRODUCTS TESTS . . . every component and assembly passes repeated tests, checked constantly in laboratory.

How TESTED QUALITY

cuts service time...
brings bigger profits!



● Reducing service repairs in your fleet frees your trucks for more important uses . . . and brings you bigger profits. Because repairs are costly, it pays to insist on the tested quality of original factory parts that assure efficient performance and usually **COST NO MORE**. The dependability Auto-Lite Original Factory Parts afford your expert service men is proved by this fact: more than half of America's car makers specify Auto-Lite. For complete information, write to

THE ELECTRIC AUTO-LITE CO.

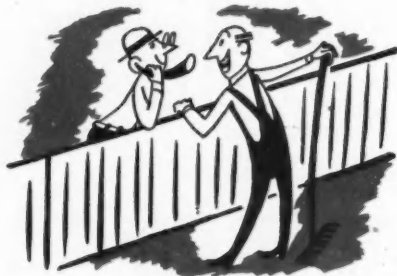
Parts & Service Division
Toledo 1, Ohio

Canadian inquiries should be addressed to
Sarnia, Ontario

**Money Cannot Buy
Better Automotive
Electrical Equipment**



LOCAL NEWS

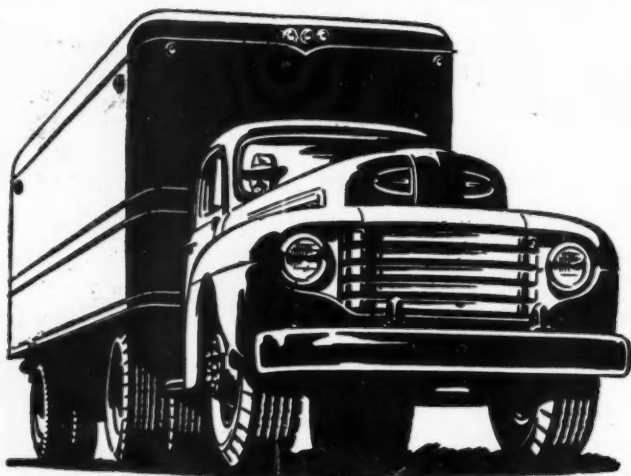


Canton, Ohio—International Harvester Co. has a new truck branch at 1600 E. Tuscarawas St.

Pelham Manor, N. Y.—Coretti-Cross, Inc., have moved their main plant and office from 1702 E. 233rd St., New York, across the border to 44 Secor Lane, Pelham Manor. They provide a complete machine shop for gasoline and diesel units in addition to a complete line of replacement parts and maintenance equipment.

Chicago, Ill.—J. J. Cunningham of Decatur Cartage Co., has been appointed chairman of the National Committee on Accounting of the American Trucking Associations succeeding A. P. Scott of Associated Transport, Inc., New York.

HEAVY DUTY TRUCKS



Need Heavy Duty Filters

Truck engines work harder, longer . . . need fast, effective filtration to keep engine oil clean and abrasive-free.

Champ Oil Filters and Refills—Heavy Duty types—Hold up better on those long-haul, heavy mileage runs.

Champ time-proven, filter medium is pressure-packed into a sturdy metal container to prevent channeling. Champ "Multi-Screen" has hundreds more oil inlets than ordinary refills. Champ's filter medium automatically neutralizes acid too.

Write for the name of the **CHAMP** jobber nearest you.

CHAMPION LABORATORIES, INC.

Meriden, Conn.

Manufacturers of Oil Filters and Refills for Trucks, Passenger Cars, Tractors and Diesels



**Price-Wise You Pay No More For Champ
Premium Quality...Service-Wise Champ Pays You**

Akron, Ohio—In an announcement recently made public by John J. Collyer, president of B. F. Goodrich, attention was called to the world stocks of crude rubber which Mr. Collyer said were 750,000 tons more than the stocks of the entire world at the time of Pearl Harbor. The figures quoted by Mr. Collyer at 1,800,000 long tons at the end of 1951 accounted for the supply now known outside of the iron curtain countries.

New York—Chairman Howard S. Cullman of the Port of New York Authority has announced that a new platform operating arrangement is being worked out at the New York Union Motor Truck Terminal under which complete responsibility will be given to over-the-road carriers.

He said the present method of operation, to be suspended on March 8, will be supplanted by an operation similar to that under which railroads lease and operate the Union Railroad Freight Terminal in the Port Authority Building.

Des Moines—B. M. Richardson, a member of the Iowa State Commerce Commission for 21 years until his recent resignation, has been appointed manager of a newly-established rate department of the Iowa Motor Truck Association, according to A. M. Schoenewe of Everly, association president.

Indianapolis—Terminal Transport, Inc., a common carrier operating between Chicago, Indianapolis, Louisville, Birmingham, Atlanta, Jacksonville and Tampa, has been sold to Joe Katz, former operator of Plaza Express, St. Louis, it was announced last week by Ernest R. Lee, president of Terminal.

Terminal Transport last year completed an extensive modernization program, Mr. Lee said. The program included construction of a terminal at Atlanta, the opening of a new garage at Nashville and modernization of all equipment, he added.

No changes in personnel are planned by the new management, the announcement said, and general offices will remain in Indianapolis. Other officers of the company are: William G. Waldron, vice president; Floyd S. Blake, secretary-treasurer, and J. Frank Clark and C. C. Hess, assistant vice presidents.

Chattanooga, Tenn.—Robert J. Marable, formerly of Knoxville, has been named safety director of all Dixie Ohio Express lines, Clarence Kelly, general manager of Dixie Ohio, announced from the company's general offices in Akron.

Buffalo, N. Y.—Archibald V. Pilkey, vice president and part owner of W. H. Pilkey & Sons, Inc., trucking and rigging concern, died suddenly in his home here recently. He was 63.

Chicago, Ill.—Illinois public works officials will embark this year on a record-breaking highway construction and restoration program with \$115,251,000 earmarked for 1952 expenditures on the state's highway network.

Trenton, N. J.—Gov. Alfred E. Driscoll has indicated he will refrain from seeking new general taxes in 1952, but he has suggested possibility of a mileage tax on heavy trucks.

to Car Owners to Dealers to Wholesalers

has always based any policy changes on a thorough analysis of the problem — backed by wide experience and close contact with all levels of automotive parts distribution.

Thermoid's 1952 pricing program was adopted only after careful consideration of every phase of the present distribution pattern, including the demands of all progressive distributors and dealers. Thermoid's program meets these demands with a completely new pricing policy—not with smooth explanations of why it would be easier to wait awhile, to drift with the tide.

No advertisement could possibly cover the thinking, the facts and the great impact carried in the new Thermoid program. If you are interested in expanding your influence in your area—if you are interested in your business Tomorrow . . . act Today.

Write or telegraph us without delay, or contact the nearest Thermoid wholesaler.

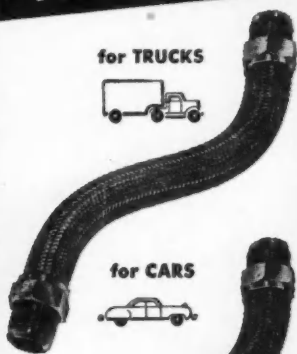


Thermoid Company • Trenton, New Jersey

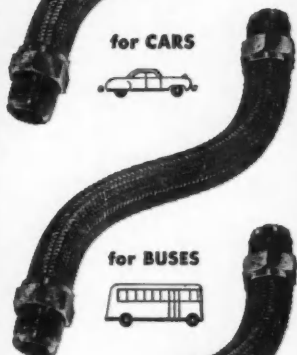
Brake Linings • Fan Belts • Radiator Hose • Hydraulic Brake Parts and Fluid • Car Mats • Clutch Facings • Thermoid Precision Process Equipment

Titeflex ALL-METAL FUEL LINES

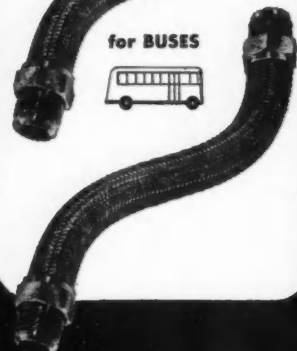
for TRUCKS



for CARS



for BUSES



Flexible for EASY INSTALLATION LONG SERVICE

The flexibility of Titeflex automotive lines makes them easier and more economical to install. It also makes them withstand vibration for longer periods of time than rigid lines. In addition, Titeflex lines are All-Metal. They require no maintenance . . . and they pay for themselves in longer service.

Sizes for all cars, buses, trucks

Write for
TITEFLEX AUTOMOTIVE CATALOG

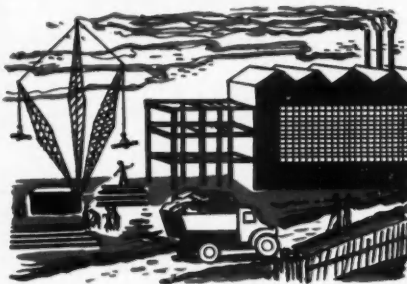
TITEFLEX, INC.

500 Frelinghuysen Ave., Newark 5, N. J.

Titeflex

ALL-METAL AUTOMOTIVE TUBING

FACTORY FLASHES



Fruehauf Trailer Co. is erecting a new branch plant at Wallingford, Conn., which will have 20,000 sq. ft. of floor space. It is expected to be ready for occupancy early next spring. Paul J. Motto, now in charge of the New Haven, Conn., operations will be the manager of the new branch.

Diamond T Motor Car Co., Chicago, has announced expansion of their space facilities to handle both defense and civilian production.

Highway Trailer Co., Edgerton, Wis., has announced the opening of a direct sales and service factory branch in Cincinnati, Ohio.

Timken Roller Bearing Co. has announced that their general credit manager, George O. Wherley has been named president of the Motor and Equipment Manufacturers Assn., Chicago.

International truck sales and service operations in the Kansas City area have recovered completely from the effects of last summer's flood disaster.

Eis Automotive Corp., Middletown, Conn., has just started building operations on an addition to their main plant.

Cummins Sales & Service, Los Angeles has a new office and building formerly occupied by the Los Angeles-Seattle Motor Express, Inc., which will double the space available for shop machinery and parts stock.

Adjust-A-Docks, Rowe Methods, Inc., have moved to new and larger quarters located at 2534 Detroit Ave., Cleveland 13, Ohio.

Black & Decker Mfg. Co. will have a new sales and service branch at 2432 S. Broadway, Los Angeles, Calif., with Waldo E. Blair as branch manager.

Willys-Overland Motors, Inc., Toledo, Ohio, reports that sales reached a new all-time quarterly high of \$66,000,000 for the three months ended Dec. 31, first quarter of the company's 1952 fiscal year. The estimate compares with sales of \$42,906,682 reported for the first quarter of the 1951 fiscal year and with \$60,093,554 in the June quarter of 1944, the former peak.

Hercules TRUCK EQUIPMENT



DUMP BODIES

Medium and Heavy Duty

HYDRAULIC HOISTS

For Dump, Grain and Platform Bodies

TRAILER DUMP BODIES & HOISTS

(with and without trailers)

PICK-UP DUMP CONVERSIONS

LOAD-N-GATE

Hydraulic Lift Tail Gates

LIME-FERTILIZER SPREADERS

SPLIT-SHAFT POWER TAKE-OFFS

MECHANICAL POWER CHUTES

For Coal—Other Material

CEMENT SPREADERS

For Soil Cement Roads



HERCULES

STEEL PRODUCTS CORPORATION
Galion, Ohio

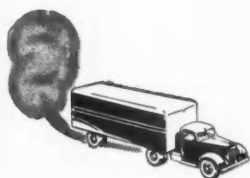
SELF-CONTROL STARTS HERE



AND TO RESTORE TRUCK ENGINE PERFORMANCE

OIL-CONTROL STARTS HERE

To stop oil-pumping, replace worn main and connecting rod bearings



Lost control usually spells trouble. This is especially true when applied to oil flow in a truck engine.

When the connecting rod and main bearings are worn, they lose control of oil flow. They no longer meter exact amounts of oil for proper lubrication. Excess oil reaches combustion chambers, burns to performance-stealing carbon on spark plugs, valves, pistons and rings. *Perform-*

ance goes up in smoke!

Give new piston rings a chance to do their own job—replace worn engine bearings, too! Genuine Federal-Mogul bearings are engineered for the job of oil-control. Ask your Federal-Mogul Jobber!

FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)
DETROIT 13, MICHIGAN



control oil-pumping where it starts—REPLACE WITH

FEDERAL-MOGUL



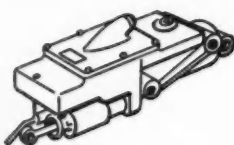
BEARINGS

after 21 years, the **S-4** STILL LEADS 'EM ALL

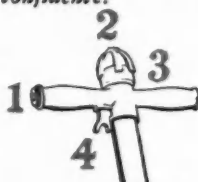


Here's why . . .

This brute was years ahead when introduced in 1931. No other jack has ever caught up to it. Blackhawk has continually added outstanding, exclusive refinements . . . so that today, as before, S-4 is the best all-purpose jack you can roll onto your floor. Order from your Blackhawk jobber . . . *with full confidence!*



ONE-PIECE POWER UNIT
has no seams or pipe plugs to leak. Ideal for wash rack use. Speed and power pump are combined to speed jacking time, eliminate parts and wear. And the exclusive floating plunger allows power unit to remain stationary, prevents distortion and leakage.



SEE WHAT FINGERTIP CONTROLS DO FOR YOU

(1) Press a button and flash a light on the lift spot. (2) Turn a key and lock or unlock the valve. (3) Twirl a knob for positive release valve action. (4) Pull a trigger and set the handle for any one of three convenient positions.

**All-purpose
4-ton Capacity**

TO OWNERS OF VETERAN S-4 JACKS

Factory-rebuilt power units are available from country-wide stocks. Liberal trade-in allowance for your old unit. And you can install a new one yourself in 20 minutes!

BLACKHAWK®

A product of BLACKHAWK MFG. CO., Dept. J-1122, Milwaukee 1, Wisconsin

New Products

Continued from Page 76

P142. Clearance Light

A heavy-duty flush-type clearance light which is vapor- and explosion-proof has been announced by Betts Machine Co., Warren, Pa. The light meets or exceeds S.A.E. recommended procedures, I.C.C. and state requirements. It is completely wired, ready for installation.

Construction features include the Snap Seal arrangement that holds a new-type plastic lens bubble-tight within a cast aluminum alloy body which is also a parabolic reflector. This pressure-seal is achieved through the use of a special composition "O" ring that eliminates the need for screws or other lens fasteners.

The lens is shatter-resistant and provides excellent light-transmission through its 3-in. diameter face and 9.4 in. circumference. The one-piece reflector-body is of minimum 1/8-in. thickness including mounting flange and has superior corrosion resistant qualities.

P143. D. C. Arc Welders

The new Model GA "WASP" direct current arc welders, available in 150 and 200 ampere sizes, have been announced by Air Reduction Sales Co., a Division of Air Reduction Co., Inc.

The volt ampere characteristics of these machines make them especially suited to D.C. straight Polarity Heliwelding with Thor-Tung. They provide for commutation at all settings, plus the advantages of self-excitation and split-pole, cross-field design provide good operation at all current settings. Continuous overlap from each current range to the next provides a wide, unbroken range of welding current—30 to 250 on the 200 ampere welder and 20 to 185 on the 150 ampere machine.

P144. Portable Crane

A new series TM hydraulic portable crane has been added by Lemco Products, Inc., Bedford, Ohio. The crane is of all welded girder type construction with square instead of tubular members and weighs somewhat less than its predecessor, yet offers great stability and maneuverability. It is operated by a hand pump.

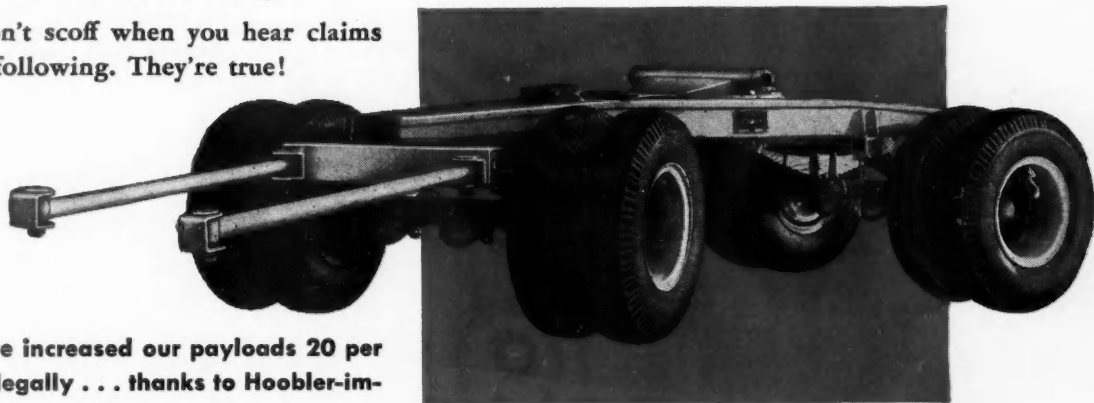
The hydraulic lifting mechanism is a single unit pump with variable speed and can be removed or reconditioned as easily as an automobile jack. There are no hose couplings to fail and the pump has a built-in check valve to prevent sudden lowering of a load.

(TURN TO PAGE 188, PLEASE)

Those HOOBLER rumors are true!

CHANCES are you've heard some hard-to-believe rumors about the kind of savings made possible by Hoobler Undercarriages. Sure . . . facts often do get exaggerated as they make the rounds. But once in a while a product is developed that even out-performs its manufacturer's expectations. And that's been the case with Hoobler Undercarriages.

So don't scoff when you hear claims like the following. They're true!



... We've increased our payloads 20 per cent . . . legally . . . thanks to Hoobler-improved axle spacing . . .

... Because of Hoobler free-towing, follow-through action, there's practically no tire scuffing. Our original treads now last 3 to 5 times as long as before . . .

... Our fuel consumption has dropped 22 per cent . . . and, despite bigger payloads, we're actually maintaining better schedules . . .

... Figured up, we're showing a 30 per cent over-all saving with our Hoobler-equipped units . . .

Time after time Hooblers come through with important savings like these—direct savings in dollars *plus* prolonged equipment life. Why not find out what the Hoobler offers in *your* particular service? For complete information, write The Union Metal Manufacturing Co., Canton 5, Ohio.



UNION METAL

DESIGNERS AND PRODUCERS OF STEEL PRODUCTS SINCE 1906

Builder of The Hoobler Undercarriage

New Products

Continued from Page 186

The Mobilecrane is available in one and two-ton capacities, with low and high mast styles at the same price in the two-ton model. Optional accessories such as an attachment for stacking or moving miscellaneous drums or crates along with a telescoping boom extension and a cradle for moving transmissions and dual wheels into place are available.

P145. Clearance Light

One of three new Pathfinder accessory lighting equipment items recently placed on the market by Auto Lamp Mfg. Co., Chicago, is the new No. 476 Armored Clearance Light. This curved lens unit has sturdy extension "armor" guarding the lens while affording good visibility.

The metal housing is a streamlined one-piece assembly. Dust and moisture are permanently sealed out by the gasket-seal. Finished in bright metal with red or amber lens, it is supplied

complete with 3 C.P. bulb and necessary wire for installation.

P146. Color Key

To meet the requirements of the small automotive refinishing shop, The Sherwin-Williams Co., of Cleveland, Ohio, announces the Color Key Junior, a low-cost device which enables the operator to mix with "light-beam" accuracy any quantity of color from a pint to a gallon.

Like the senior Color Key, this compact unit employs a light beam and Lucite dept rod. By means of an easy-to-read scale the rod is preadjusted to a specified depth within the paint can for the first color. Separate adjustment is made for each additional base color in the mixture. The specific quantity of color is reached at the instant the paint level makes contact with the illuminated tip of the Lucite rod.

P147. New Rivet

Huck Mfg. Co., Detroit, Mich., has added a low silhouette, large diameter head, blind rivet to their line of permanent fasteners.

These blind rivets provide an increased bearing area when fastening thin or soft materials to metal frameworks. The rivets are used for foil, plywood linings or floors, Masonite or Bristol Board panels, insulation, etc. Installation is by one person from one side of the work.

They are available in both aluminum and steel in either the R949 (Pull Through) or R974 (Self Plugging) types in 1/8-in. 3/16-in. and 1/4-in. diameters.

P148. Filter Cartridge

The use of raw cotton fibers in the manufacture of "Densite" oil filter cartridges has been introduced by Hastings Mfg. Co., Hastings, Mich. According to Hastings, each fiber works independently catching oil residue until all fiber surfaces are coated. In addition, the cartridge container has no loose parts and does not require line adapters, the manufacturer states.

P149. Lock Plug

A new, heavy-duty electric plug with a positive but simple locking device, has been placed on the market by Hopax Electric, Inc., Chicago. This new plug, known as the Hopax Lock-Plug, is connected in the same simple manner as any ordinary male plug. It fits any standard twin receptacle. A heavy metal adaptor plate with locking slots fits

(TURN TO PAGE 190, PLEASE)

Longer Contact Life

for YOUR ENTIRE FLEET

COPPER CONDUCTOR STRIP

STAINLESS STEEL FLOATING SPRING

OVER 50% MORE CONTACT AREA

OVERSIZE BUSHING

NO SLIP BUSHING

METAL FRAME EMBEDDED INTO RECESS... CAN'T SLIP!

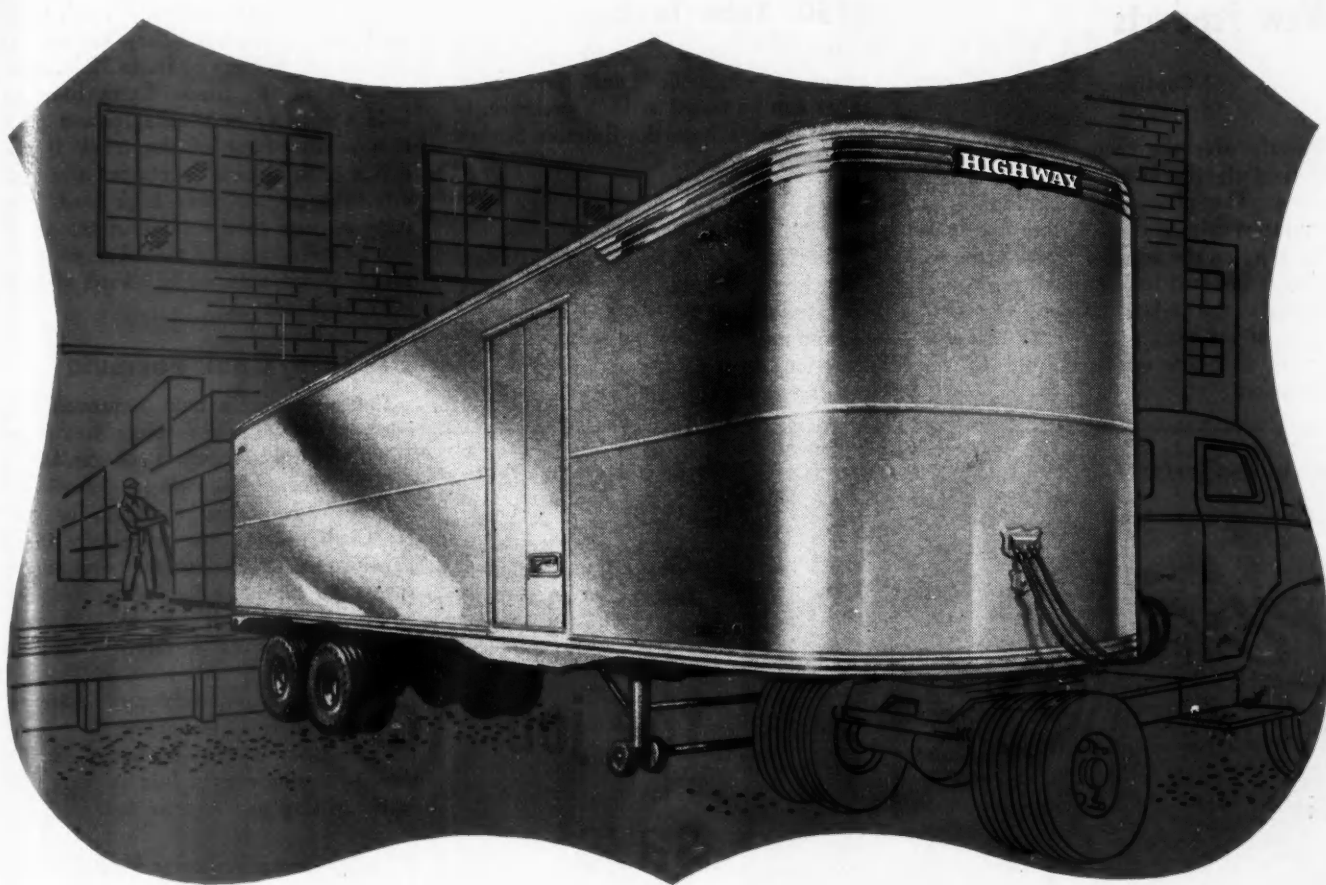
ECHLIN

Heavy Duty Contacts for ALL THREE Ignition Systems

ECHLIN MANUFACTURING COMPANY
234 EAST STREET • NEW HAVEN 5, CONN.

CONTACTS COILS • CONDENSERS & OTHER AUTOMOTIVE ELECTRICAL PARTS

ECHLIN Ignition



***Highways* deliver MORE because they've got more to deliver!**

You've heard it said that a trailer never really wears out. Let's say that a *good* trailer, with proper handling and maintenance *can* have a mighty long life.

BUT—it's *how* a trailer wears that is really important. How much of its life is spent on the road and how much in the repair shop? What's its payload *total* during its life?

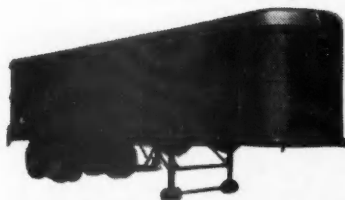
Highway trailers have a name for being built just a little better than ordinary trailers. We

give them what it takes to make them deliver that way. Their best delivery is the extra payload profits they leave in your bank account.

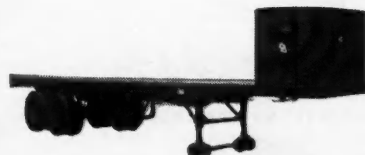
We'll keep on saying it and hope you'll make us prove it: *Highway delivers more trailer for your dollars than you can buy elsewhere.*

Plants at: Edgerton, Wis. • Stoughton, Wis. • Cincinnati, O.
Manufacturers of: Trailers, Trailerized Tanks and Truck Tanks • Utility Truck Bodies • Earth Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-Offs • Service Accessories.

HIGHWAY TRAILER COMPANY • Headquarters: Edgerton, Wis.



Highway "Clipper" — For general hauling. Closed top, full open, and partial open models.



Platform Trailers — Semi and full trailers. Capacities from 20,000 lbs. to 40,000 lbs.

DESIGNED, BUILT, SERVICED — *"Just a little better."*

New Products

Continued from Page 188

directly over the receptacle plate and is held tightly in place with a center screw. The plug has a sliding collar equipped with lugs to fit into two locking slots on the adaptor plate. After the plug is inserted into the wall receptacle through the adaptor plate, a slight twist of the plug collar locks the plug firmly in place until released by the operator.

P150. Tube Tester

Defect-O-Tester, a wire protective guard in which new and used inner tubes can be tested at high pressure, is now available from the Reliable Spring & Wire Forms Co., Cleveland, Ohio.

P151. Truck Canopy

The Harben Metalfab Corp., Dallas, Tex., has introduced a model S canopy for stake and platform trucks. The canopy uses channeled steel in the construction of the frame in place of tubular steel or wood. The canopies are

turned out as completely ready-to-install packaged units. They are adjustable in height from 62 in. to 72 in. from the bed of the truck. Extra brackets hold the bows in a safe reserve position at the front of the truck if the driver should have to remove the canopy to carry an extra high load. The ends as well as the sides of the cover can be rolled up and tied. The cover is made from substantial waterproofed olive drab canvas.

P152 Dy/Chek Formula

Completion of a new, improved and non-toxic Dy/Chek formula has been announced by Turco Products, Inc., Los Angeles.

Chief advantages claimed for the Dy/Chek process are its relative inexpensiveness — no special equipment, royalty or licensing fee is required; its application to both ferrous and non-ferrous metals; its portability; and its accuracy.

Dy/Chek is not only applicable to mass production inspection of parts under factory conditions, but it can be used by a single mechanic or inspector in examining parts in the field.

P153. Breakaway Valve

Wagner Electric Corp., St. Louis, Mo., announces the availability of a new tractor emergency valve that affords drivers and tractors complete protection in the event of a breakaway. This new safety device eliminates hand operated shut-off cocks and standard two way valve. It automatically seals tractor air system when trailer is disconnected providing protection from possible mishap caused by; improper "glad-hand" connection, damaged air hose, loss of air in trailer system or complete breakaway. Simplifies drivers responsibility; for complete protection all the driver does after making "glad-hand" connection is to fully open the hand valve, completely charging the trailer system. It is applicable to either straight-air or air-over-hydraulic brake systems. Unit measures 6 in. long by 4 in. high by 5 in. wide and weighs approximately 7½ lb.

P154. Towmotor Model W

A built-in generator has been developed for use with Towmotor electric pallet trucks, eliminating the need for conventional electric storage batteries and re-charging, and providing constantly available power for 'round-the-clock operation, according to an announcement by Towmotor Corp., Cleveland, Ohio. The new unit, called "Towmotor Model W with Ready-Power," is an adaptation of Towmotor's standard (TURN TO PAGE 192, PLEASE)

FROM AN AD APPEARING IN THE

FEBRUARY 16 ISSUE OF SATURDAY EVENING POST



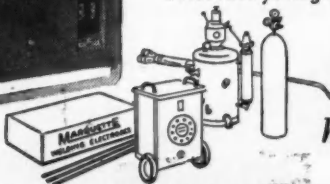
When
the job
says

WELD IT

Be ready with **MARQUETTE!**



More and more, Marquette is the welding equipment used by body and repair shops, welding shops, industry. Official equipment at the Indianapolis Speedway, Marquette welders, electrodes and rods have proved themselves fitted for the most difficult jobs. Whatever your requirement, you'll find your best answer in the Marquette line. Ask your jobber about Post advertised Marquette!



MARQUETTE
REG. IN U. S. PAT. OFFICE

Welding & Automotive Service Equipment

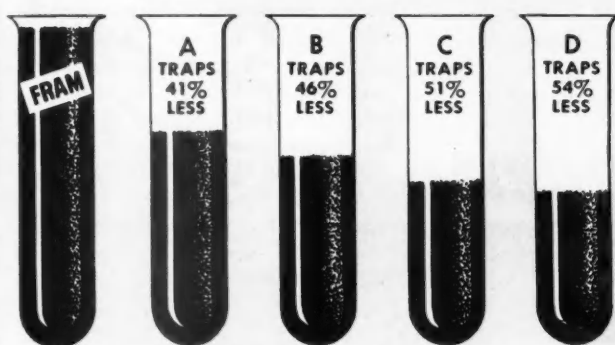
MARQUETTE MANUFACTURING CO. INC. • 307 E. HENNEPIN AVE. • MINNEAPOLIS 14, MINNESOTA



SPARKY SEZ—There's a whale of a difference in welding rods. To find not only the right kind but the best of the right kind, make your selections from the Marquette Rod Bar at your jobbers'.

Actual Tests Prove **FRAM FILTERS** BEST

Actual Laboratory Tests Prove:
Fram Traps More Dirt than all other popular brands tested!



Yes, conclusive proof that Fram Filters Best!

**Here's absolute PROOF that
FRAM REMOVES MORE DIRT
than other popular brands!**

This graph shows what happened when Fram was laboratory-tested against other leading brands of oil filter cartridges. Crankcase oil containing identical quantities of engine-killing dirt was filtered through each cartridge for ten hours. Dirt content was measured accurately throughout the test. The graph at left shows the results at a glance. Fram Cartridges removed more dirt, and removed it faster, than all other popular brands tested.


**FRAM CARTRIDGES SAVE
YOU TIME, LABOR, MONEY!**

Fram *does* save you money . . . and that's no idle boast. It's a fact proven not only by Fram's exhaustive tests in the laboratory, in the Dust Tunnel and on the road . . . but by the statements of Fleet Operators like yourself all over the country. Start using Fram Cartridges today and see if you don't get *longer mileage* with *cleaner engines!* Fram makes cartridges to fit most any make filter.


FRAM Oil & Motor Cleaner...
used on over 15,000,000 cars,
buses and trucks.


FRAM Positive Crankcase
Ventilator...removes harmful
by-products of combustion
from crankcase . . . prevents
sludge, prolongs engine life.


FRAM Carburetor Air Filter...
stops dust, dirt, grit and ab-
rasives from being drawn
into engine through intake . . .
saves rings, cylinder walls,
bearings, other engine parts.


FRAM Gasoline Filter . . . re-
moves water and solid particles
from fuel—prevents stoppages
—preserves carburetor parts.


FRAM Radiator & Water
Cleaner . . . stops rust, scale
and deposits. Softens water.
Harmless to antifreeze.



FRAM
OIL • AIR • FUEL • WATER
FILTERS



**Send for FREE
Lubri-Graf**

Provides instant visual check on
condition of oil and engine. Indi-
cates cartridge changes only
when needed. Saves time, money. Write FRAM
CORPORATION, Providence 16, R. I. In Canada:
J. C. Adams Co., Ltd., Toronto, Ontario.

New Products

Continued from Page 190

electric pallet truck, with a small, gasoline-powered generator supplying constant, maximum voltage for operation of the truck. The Ready-Power mechanism is mounted in the standard battery compartment, with gasoline engine, fuel tank, starting battery and all accessories completely enclosed in the sturdy steel housing.

P155. Portable Light

A grounded portable light that includes an approved three-wire convenience outlet has been introduced by McGill Mfg. Co., Valpariso, Ind. Known as the 5000-G Series, these lamp guards are designed to promote safety in the handling of portable lighting and the power tools attached at the handy convenience outlet.

The series has two cage designs. One design features a concentrating end lens and rotary reflector for focusing light where it is needed. The other has

the standard McGill No-Rol cage and reflector and is constructed of heavy steel wire. The 5000-G Series guards have molded phenolic handles which are nonconductive, heat and impact resisting and positively insulated. The complete assembly is designed to resist oils, greases, some acids, flame, moisture and abrasion.

P156. Seamless Hose

Uniflex, a flexible bronze metal hose that is both seamless and pressure tight, is being produced by Titeflex, Inc., Newark, N. J., at its Springfield, Massachusetts plant. This is in addition to Titeflex's regular line of standard flexible metal hose. Developed primarily for conveying liquids or gases while withstanding high temperatures, corrosion, and abrasion, Uniflex is also used as a vibration eliminator. Fabricated by a revolutionary method, this hose of helical construction distributes the flexing between the inner and outer convolutions, thus allowing greater flexibility and longer life. For additional safety, Uniflex is also produced with a covering of one or more layers of tensile bronze wire braid.

P157. Cylinder Lubricator

A new upper cylinder lubricator unit has been engineered for use with "Whiz Motor Rythm," by the R. M. Hollingshead Corp. of Camden, N. J.

Designed and manufactured by White Automotive Products, Inc., the unit provides automatically controlled top-cylinder lubrication in the combustion area. This lubricator vaporizes the lubricant at the immediate point of entry into the manifold air-intake, preventing the lubricant from reverting to a liquid in the feed line and providing for complete distribution to all the vital top engine parts.

P158. Knurling Tool

A new type knurling tool, known as the Handy Knurler, has recently been introduced by the M.P.A. Co. of Los Angeles. This hand-operated knurler may be used with a lathe, drill press, or, if no machine tools are available, the work can be held in a vise and the knurler rotated around it.

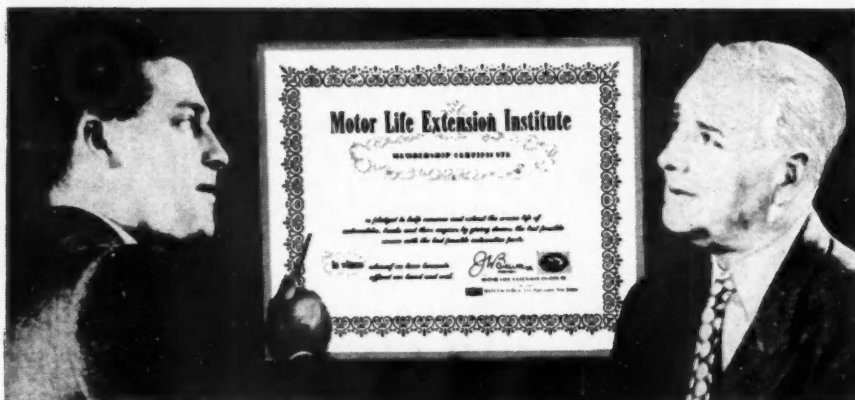
The knurler will raise the surface on materials from a few thousandths of an inch to twenty or thirty thousandths of an inch, depending on the knurl pattern used. It will accommodate parts ranging from 5/32 in. to 2 in. in diameter, knurling any length desired.

END

Please Resume Reading Page 79

SEE OUR EXHIBIT AT PACIFIC AUTOMOTIVE SHOW
LOS ANGELES—BOOTHS 72-73

KEM invites you to join the . . . Motor Life Extension Institute



Today there is great need for Motor Life Extension. KEM invites you to join the Motor Life Extension Institute formed with the following objectives: 1. To extend the service life of autos, engines and parts during and after the National Emergency. 2. To provide Independent Mechanics with more business by educating them in preventive maintenance. 3. To increase safety by encouraging vigilant maintenance service with better parts. 4. To improve training and create a skilled manpower pool in the automotive trades. 5. To promote economy for the motorist and greater profit for the Jobbers and dealers. KEM sponsors this institute. Write for full information.

A few KEM LIFE EXTENSION REPLACEMENTS

- Kem Fuel Pumps with the LIFETIME Binalon Diaphragm
- Kem LIFETIME Micro-Bronze Filters
- Kem PREFITTED Ignition Parts

MOTOR LIFE EXTENSION INSTITUTE in care of
KEM MANUFACTURING CO. • FAIR LAWN, N.J.
CABLE: KEMSALES, FAIRLAWNNEWJERSEY

Here's what you get:



• A Membership Certificate comes with the Seal of the Institute in color. Write for it. Display it to tell the motorist you are concerned with keeping his car rolling.



• KEM TUNE-UP DIGEST. Published by Motor Life Extension Institute (1941-1951 specs). Follows up-to-date tune-up procedure. Helps mechanics diagnose engine troubles. Send 25¢ for copy of Digest and Institute Membership Certificate.



• DEMONSTRATION CLINICS—FREE. A series of Important clinics to train Independent Mechanics to properly replace, repair and rebuild automotive parts. Clinics will be held in key areas throughout U. S. A.

Write for your
"Package" today!



KEM



TODAY America's foremost builder of Diesel trucks smashes the size-weight barrier that up to now has denied the many economies of Diesel power to haulers of medium-weight loads.

Today GMC offers users of equipment in the 19,500 GVW-35,000 GCW range a sensational new Diesel truck-tractor.

It is powered by the first welterweight Diesel truck engine—a smaller, more compact model of the famous General Motors 2-cycle engine that has made GMC America's first-choice Diesel truck.

More Miles Per Gallon

Because it is Diesel-powered, this new GMC Series D450-37 will cost you far less to run per mile, far less to maintain per year than any 2½-tonner you've ever owned. *All Diesel experience proves that.*

Because it is a 2-cycle Diesel, it is a fast-starting, quick-accelerating, highly responsive truck with plenty of snap in traffic—a truck that will maintain a steady "on time" schedule even on hilly runs.

Fuel economy is automatic thanks to GMC's famous Fuel Modulator. Regardless of throttle pressure this engine never gets more fuel than it needs and makes the most of what it gets. Smooth driving is assured by "easy-turn" recirculating ball-bearing steering—even electric shifting on two-speed axle models.

Nationwide Service

Equally important to the thousands of truckers who can now enjoy the benefits of Diesel power for the first time, this new GMC D450-37 is backed by the nation's largest network of Diesel service stations.

Before you buy another truck, you owe it to yourself to investigate these new GMC welterweight Diesels *if you want to cut costs!* Your nearest GMC dealer will be glad to give you facts and figures that will open your eyes. Why not see him today?

GMC Truck & Coach Division of General Motors

Get a real truck!

GMC Introduces Hydra-Matic Drive for Parcel Delivery

▼ GMC Truck & Coach Div., General Motors Corp., has introduced Model P152-22 Parcel Delivery vehicle, with dual-range Hydra-Matic drive as standard equipment. Mounted on a wheelbase of 125¼ in., it has a nominal rating of

¾ ton, GVW rating of 7000 lb. The body is of the Montpelier forward control style. Power is supplied by the standard GMC 228 six-cyl, 100-hp gasoline engine.

The dual-range Hydra-Matic drive,

described on page 178 of this issue, has a three-speed—3-2-1—range for city driving in traffic; a four-speed—4-3-2-1—range for boulevard and country driving. This provides completely automatic gear shifting in accordance with traffic conditions, thus relieving the driver of all responsibility.

*The transmission control lever facilitates finger-tip selection of neutral, reverse, and the three forward speed ranges, including the emergency low—2-1. A positive step prevents accidental shift into reverse. A visible indicator shows the control lever position in each phase.

In addition, GMC has provided a foot-actuated parking brake, conveniently located, set by foot pressure, released by hand pull rod on the instrument panel. This makes for easy parking on hills or on level.

Forward mounting of the transmission, brake and steering controls provides the maximum of loading space, achieves the ultimate in driving ease.

A wide track front axle of heavy I-beam construction, with a rating of 3500 lb., is designed to accommodate the wider bodies and sharper turning angles required in this forward control chassis. The rear axle, with a capacity of 5000 lb., is of full-floating hypoid gear type, with a banjo housing and two-shoe type hydraulic brakes. Gear reduction is 5.14 to 1. A straddle-mounted pinion and thrust block assure true ring gear alignment under all load conditions. Wide-spaced roller wheel bearings and large diameter axle shafts give added dependability and long life.

Extra heavy front springs—40 x 2 in.—are of semi-elliptic type with eight heat-treated alloy steel leaves. Double-acting telescoping type shock absorbers are provided both front and rear, together with a stabilizer bar at the front end. The steering gear is of recirculating ball and nut sector type with rolling contact of all working surfaces.

New Holley Carburetors

The Holley Carburetor Co. has announced two new carburetors: The Holley Visi-Flo for popular priced cars and light trucks, and the Centri-Flo for luxury passenger cars and heavy-duty trucks.

Savings in height in the Visi-Flo combined with the glass fuel bowl reduces the amount of scarce metals ordinarily needed. The Model 1904 is a 1¼-in. SAE Standard single downdraft for 80-120 hp engines. Model 1904 is also available with 1½-in. SAE Standard flange. The Centri-Flo concentric carburetor is 1¼-in. SAE Standard dual-downdraft for 110-180 hp engines. It is the Holley Model 1901.



LISTEN to Your Compressor...
too frequent running costs you money!

**Exclusive
PLATE VALVES
CUT RUNNING TIME!**

Champion's Aero-Dynamic Design includes specially designed, quiet, quick-acting wear-resisting plate valves located at the top of the domed cylinders. They are important because they insure straight-line air flow, minimum running time, longer compressor life and lower maintenance costs. Like Champion's exclusive domed pistons and cylinders, automotive type connecting rods and bearings and separate crankthrows for each connecting rod, the special plate valves are superior engineering points that defy comparison.

Listen to your compressor . . . if it is running too frequently it is costing you money by slowing down your air operated tools, taking up mechanic's valuable time and running up electrical costs. See your Champion Jobber today or write for free copy of the informative Champion Catalog Now!

CHAMPION PNEUMATIC MACHINERY CO.
829 No. Pleasant St., Princeton, Illinois

CHAMPION
AIR COMPRESSORS

CAR WASHERS • AIR HOSE REELS • SERVICE TOWERS • CEILING SWIVELS

Pathfinder

STATE
APPROVED

LIGHTING EQUIPMENT

Points the way to **FLEET SAFETY!**



Pathfinder

SELECTO-SET

SIGNAL LIGHTS for

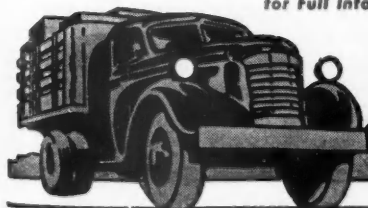
light panel trucks and other
delivery vehicles

EASY to install. Three types (flush, fender type and stud mounting) permit you to make sets to fit most light delivery vehicles. Directional signals flash from clear-lens front lights and red-lens rear lights. Automatic, self-cancelling switch cuts off after turn is made.

SET NO. SC4-369 (Illustrated)

Complete with 2 fender-mounting lights with clear lens and 2 fender-mounting lights with red lens, 21 C.P. bulbs, switch, flasher and wire for complete installation.

See Your Pathfinder Jobber or Write Direct
for Full Information — TODAY!



AUTO LAMP Manufacturing Co.

3909 INDIANA AVENUE • CHICAGO 16, ILLINOIS



Illustrated: No. 4301
Fender Mounting Type

Pathfinder

SEALED BEAM...CLASS 1...TYPE "A"

SIGNAL LIGHTS for trucks,
tractors, trailers and busses

Conform to all S. A. E. Specifications!

FLASH 12 square inches of illumination. Self-cancelling switch provides *automatic signal cutoff* after turn is made (also operates manually).

6 SETS FIT MOST HEAVY DUTY VEHICLE REQUIREMENTS
Easy-to-install set is complete with steering post switch and beam indicator, harness, mounting clamps, flasher, inline fuse, all necessary wiring, and full directions for installing. 6 or 12 volt lamps available.

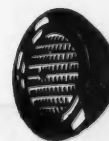
- Sturdy Black Weather-Resistant Enamel Finish
- Moisture-proof — Dust-proof — Fume-proof
- Sealed-Beam GE Units



FENDER
MOUNTING



SURFACE
MOUNTING



FLUSH
MOUNTING

CCJ Reports

Continued from Page 31

Fleet Safety Director To Receive Award

The motor transportation industry has been called upon to nominate the outstanding fleet safety director to receive the first Marcus A. Dow Memorial Award. In a letter to industry leaders, Walter A. Stewart, President of the

1951 Domestic Truck Factory Sales by G.V.W.*

	5,000 lb. and less	5,001- 10,000	10,001- 14,000	14,001- 18,000	18,001- 26,000	26,001- 36,000	Over 36,000	Total
January.....	50,435	21,029	8,476	16,957	5,528	5,057	3,180	109,262
February.....	43,207	18,940	6,639	14,767	4,676	5,320	3,285	94,834
March.....	52,948	25,003	9,467	17,967	3,719	5,786	3,305	118,235
April.....	51,290	21,638	11,179	18,006	5,165	6,304	3,302	117,483
May.....	52,961	22,082	11,389	19,837	5,052	6,652	3,458	121,461
June.....	51,390	22,161	7,854	19,286	4,683	6,875	2,830	115,076
July.....	39,979	18,585	8,364	15,109	3,707	5,060	2,713	91,517
August.....	42,072	19,579	5,876	16,527	5,375	6,276	3,302	99,007
September.....	37,206	17,396	5,711	17,385	4,467	4,653	3,633	90,445
October.....	36,776	16,443	5,271	16,612	4,747	7,527	4,699	92,275
November.....	31,782	14,664	4,213	14,179	2,839	5,667	2,309	75,653
Eleven Months—1951.....	490,076	215,542	80,469	187,231	49,948	65,777	36,216	1,125,251
Eleven Months—1950.....	529,615	223,429	70,464	154,405	38,662	37,549	24,807	1,078,891

* Automobile Manufacturers Association.

1951 Truck Trailer Shipments*

	October	Ten Months
VANS		
Insulated and refrigerated.....	322	3,322
Steel.....	87	
Aluminum.....	235	
Furniture.....	194	871
Steel.....	183	
Aluminum.....	11	
All other closed-top.....	1,552	20,742
Steel.....	936	
Aluminum.....	616	
Open-top.....	189	2,661
Steel.....	87	
Aluminum.....	102	
Total—Vans.....	2,257	27,596
TANKS		
Petroleum.....	546	4,195
All other.....	74	452
Total—Tanks.....	620	4,647
POLE, PIPE, AND LOGGING		
Single axle.....	76	1,077
Tandem axle.....	123	1,615
Total.....	199	2,692
PLATFORMS		
Racks, livestock and stake.....	176	1,611
Grain bodies.....	121	758
Flats (all types).....	1,086	9,091
Total.....	1,383	11,460
Low-bed heavy haulers.....	464	3,230
Dump trailers.....	117	998
All other trailers.....	263	2,882
Total—Complete trailers.....	5,303	53,535
Trailer chassis.....	305	2,738
Total—trailer and chassis.....	5,608	56,273

* Industry Division, Bureau of the Census.

American Optical Co., chairman of the award committee, stated:

"The Marcus A. Dow Memorial Award makes it possible to recognize outstanding achievement in one of the important professional fields required in the motor transportation industry. It is up to all branches of the industry to insure that the final recipient of this award is an individual of exemplary professional achievement."

The person nominated must have been a practicing fleet safety engineer within the last five years, must have taken part in safety activities of a local, regional or national scope, must have made significant contributions to the field of safety engineering through contributions to publications of the motor transportation and/or the field of fleet safety engineering, and must have

(TURN TO PAGE 200, PLEASE)

1952

ELECTRICAL DEMANDS

CALL FOR

Leece-Neville ALTERNATORS

Today's accessory load takes more current from the battery than conventional d.c. generators can put back in. Batteries fail. Vehicles break down. Costs mount.

For 1952 performance, replace out-dated d.c. generators with the Leece-Neville AC-DC Alternator System, that gives you

25 TO 35 AMPS WITH ENGINE IDLING

There are Alternators for 6 and 12 volt systems with capacities from 50 to 150 amps.

Write the Leece-Neville Company, Cleveland 14, Ohio. Distributors in principal cities. Service Stations everywhere.



**YOU CAN
RELY ON**

Leece-Neville

ALTERNATOR SYSTEMS • GENERATORS
STARTING MOTORS • REGULATORS • SWITCHES
FRCTIONAL HP MOTORS



Keep rolling this year with
low-cost Studebaker trucks



Decorative and other specifications subject to change without notice.

**Spend less for gas...less for repairs!
Get a full measure of on-the-job mileage!**

Cut your hauling costs with a wear-resisting, gas-thrifty new Studebaker truck—available in ½, ¾ and 1 ton pick-ups and stakes or husky, powerful 1½ and 2 ton models.

Hundreds of thousands of rugged, reliable Studebaker trucks are proving their economy and durability daily. Get in touch with a nearby Studebaker dealer right away.

STUDEBAKER TRUCKS

*Big in pulling power... big in earning power
... noted for low-cost operation*

The Studebaker Corporation, South Bend 27, Indiana, U.S.A.

CCJ News Reports

Continued from Page 198

achieved a better than average accident record within his own organization.

The Dow Memorial Award was established in July, 1951, by the National Safety Council through a grant from the Greyhound Corp. Nominations must be made on an official entry blank and mailed to Paul H. Coburn, Secretary, Dow Memorial Award Committee,

c/o National Safety Council, 425 N. Michigan Ave., Chicago, Ill., by midnight April 1, 1952. Official entry blanks may be obtained by writing the secretary.

Governor Vetoes Pa. Bill

At the eleventh hour (and 59 minutes) Gov. John S. Fine of Pennsylvania vetoed the "Fair Truck" bill which would have liberalized weight limits throughout the state. He had 30 days in which to act after the adjournment of the legislature, where the bill had been passed by both houses. One

minute before the deadline, he signed the veto.

DTA Has New Highway Chief

Ronald R. Monroe has been appointed Director of the Street and Highway Transport Division of the Defense Transport Administration. He succeeds Edward D. Hicks, Jr., who is now affiliated with a motor carrier concern in St. Louis. Mr. Monroe is on a leave of absence from the firm of Monroe & Sutton, management consultants.

Army Wants New Inventions

Our armed services are calling for all good inventors to come to the aid of their country.

The Army wants some ingenious American to come up with an idea for a super-snow-worm. The snow worm could be used to bore tunnels through ice and snow for the passage of trucks and tanks.

Something should be done about fuels and lubricants to keep the war wheels rolling smoothly under Arctic conditions. New inventions are wanted along this line.

Titanium is the big thing in metals, and we have plenty of it. The inventions needed are ways of melting and fabricating it. Titanium is needed for planes and armor. It's practically indestructible and half the weight of steel.

Somebody is going to invent an adhesive tape that will stick everlastingly, and stick under the coldest possible conditions.

These and many other items are on a list compiled by all branches of the armed services. Appeal is made through the National Inventors' Council in Washington, a semigovernmental organization comprised of outstanding inventors and engineers.

Inventors should have their inventions patented before submitting them to the Government or to anyone else, National Patent Counsel declares.

Driver Education To Expand

Michigan State College has announced the establishment of the nation's first professorship in driver education. The program will be directed by Prof. Leslie R. Silvernale of the college's Continuing Education Service.

Plans call for a two-pronged attack on the growing accident rate. One will be aimed at reaching Michigan's 330 high school teachers of driving through special courses in their own home towns. At the same time, workshops and educational conferences are planned on the campus to study driver education problems. The second prong of the attack will be the establishment of a credit course on the campus in the

(TURN TO PAGE 202, PLEASE)

FLEXIBLE RIBS PREVENT LEAKS



New



WHEEL CYLINDER Rib-Reinforced CUPS

for all late model CHEVROLET, FORD, INTERNATIONAL, GMC, and other trucks

Once again, EIS produces a winner! This time, it's the fully patented Chevron-Type Wheel Cylinder cup for trucks. Discover the built-in, strong, flexible ribs. See how they hold wall pressure correctly — eliminate fluid leaks.

EIS Rib-Reinforced Cups are completely proven and road-tested — (Chrysler Products, 1942 thru 1951). Used and recommended by Brake Specialists and major taxi fleets. Install Ribbed Cups, they'll eliminate costly "lay-ups," do a more efficient job than standard equipment and therefore, cost less.

EIS AUTOMOTIVE CORP., MIDDLETOWN, CONN.

Don't forget! When you check fluid, refill with EIS Super 40 (moderate) for passenger cars, or EIS Super 50 (heavy-duty) for trucks, buses, tractors.

• CABLES
• FLUIDS
• PARTS



• KITS
• TOOLS
• CYLINDERS



ASK YOUR JOBBER OR WRITE DIRECT

Gemmer Easy Steering Lowers Costs

**by Cutting Maintenance
... and Speeding Schedules**

Easy maneuverability of Gemmer steered vehicles helps to make faster schedules through traffic, in and out of parking places, docks and narrow entries. The lessened steering load substantially reduces driver fatigue. No letdown the latter part of the day. Increased mileage per vehicle makes for important reduction in operating as well as capital costs.

Gemmer Easy Steering cuts maintenance. Having little or none of its own, it contributes to reduction of over-all vehicle maintenance. Easy maneuverability plus alert, unfired drivers help hold down vehicle damage costs.

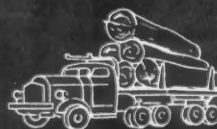
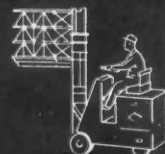
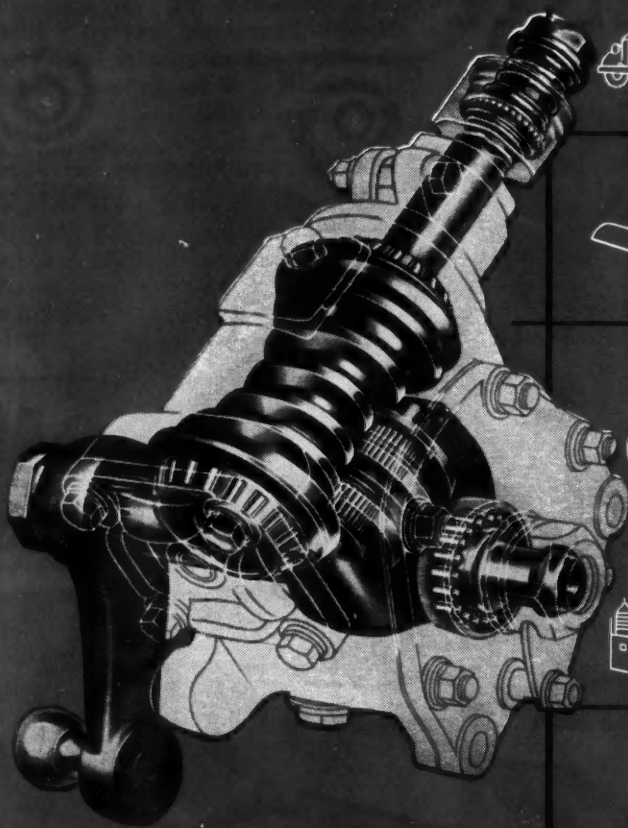
Gemmer Easy Steering is always responsive, firm, with no rubbery feeling or wander. Rolling gear-tooth sector, plenty of antifriction bearings, almost eliminate friction. Strength is abundant and there is plenty of power for parking.

With reasonable care, a Gemmer Steering Gear will last the life of the vehicle.

GEMMER MANUFACTURING CO.

6400 Mt. Elliott • Detroit 11, Michigan

*Gemmer Has Made Motor Vehicle Steering
Gears for 43 Years*



CCJ News Reports

Continued from Page 200

college's Division of Education. The course will be designed to train students of education, present high school teachers of driving and other adults.

NPA Has New Boss

Secretary of Commerce Charles Sawyer recently announced appointment of Henry H. Fowler as Administrator of the National Production Au-

thority. Mr. Fowler, who has been serving as Deputy Administrator of NPA since September 10, 1951, succeeds Manly Fleischmann, who resigned to devote his full attention to his post as Administrator of the Defense Production Administration.

Tax Diversion Summary Released

In an effort to publicize the excessive diversion of highway use tax funds by the states, the National Highway Users' Conference has prepared a dollar-and-cents report. Taken from information recently released by the Bureau of Pub-

lic Roads, the summary presents the total amount of highway income used for other purposes over the 1941-1950 period.

Rhode Island leads all states in percentage diverted, with Texas bringing up the lowest amount. Ten states out of the 48 do not divert highway income. The Conference takes a case in point in the Florida toll highway between Jacksonville and Miami now under construction. They state "if the revenues in Florida were applied to the construction of the facility at the rate which they were diverted in 1950, the road could be paid for in five years instead of the 25-30 years necessary under the revenue bond financing."

Scholarship Details Outlined

In the fall of 1951 Pacific Intermountain Express Co. established scholarships entitled "P-I-E Scholarship in Highway Transportation" at Stanford University, Palo Alto, Calif., and Northwestern University, Evanston, Ill. The recipient of the scholarship at Stanford University was Clinton A. Logas of San Francisco. Donald R. Kreutzinger of Chicago, Ill., was awarded the Northwestern University scholarship.

Students to be eligible for the P-I-E scholarships must have successfully completed all but the last year of college training and transportation must be included in their final year of study. Faculty committees select the scholarship recipients from the qualified students based on their scholastic records, character, and ability.

Fleet Refresher Conference

A two-day refresher conference for alumni of the Motor Vehicle Fleet Supervisors' Courses will be held March 17 and 18 at the Engineering College, University of Washington, Seattle. Opportunity to air the various professional problems of the fleetmen will be the key purpose of the conference, with subjects of special and general interest rounding out the program.

Aluminum Progress Viewed

Donald M. White, secretary, The Aluminum Assn., has reported that for the U. S. aluminum industry, the year 1951 was one of top production, new plant projects to expand its capacity, and increasing curtailment of civilian use. Although the industry increased its primary capacity about 20 per cent during the year, curtailment in the use of the metal for nonessential purposes became more drastic as the year progressed, because of the mounting demands of our accelerating defense program, the reduction of imported metal, (TURN TO PAGE 234, PLEASE)

NEW FROM SPARTON

The greatest air horn of them all for air-equipped trucks and buses ... from Sparton



Model 270—All
Hammerloid
Gray

NOW ALSO: Model 271C—
Trumpets—Chrome
Housing and Bracket—
Black enamel

Extra-rugged, matched pair, same as developed by Sparton for U.S. military vehicles, with a special, powerful *highway* tone for plenty of sales in the big air-equipped truck and bus market. No horn value like it anywhere ... because it's Sparton. Order now!

CHECK THESE SALES FEATURES:

- Requires only 10-100 lbs. air pressure to operate.
- Low air consumption—only 6 cubic feet per minute at 100 lbs. pressure.
- Conforms to rigid requirements of U.S. Army Ordnance.
- Factory-tuned and sealed for long life.
- Rugged construction.
- Weatherproof.
- Sturdy control valve gives wide range of sound output.
- Low price.

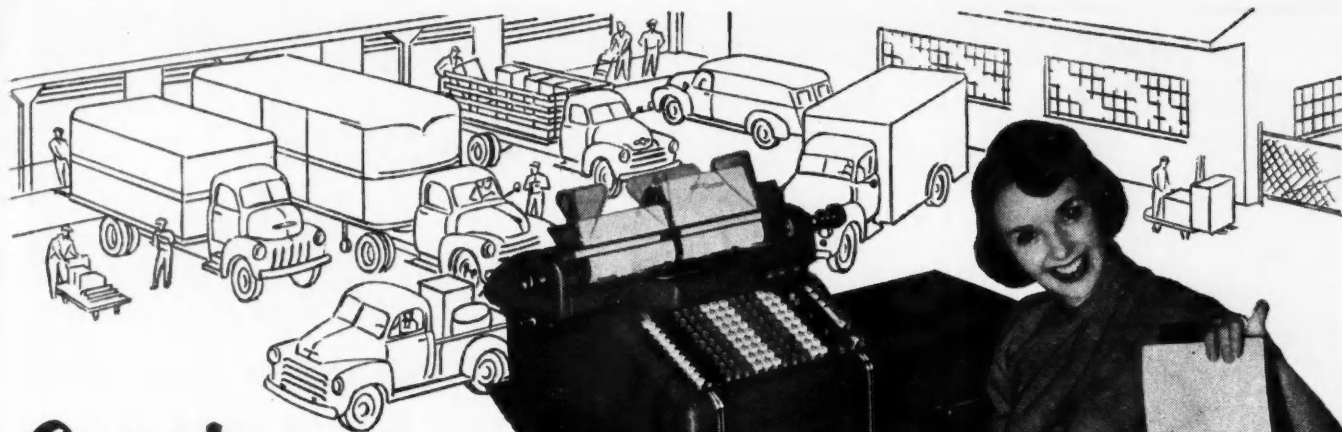
Sparton
AUTOMOTIVE

Division of
THE SPARKS-WITHINGTON
COMPANY

JACKSON,
MICHIGAN

MAKERS OF QUALITY AUTOMOTIVE EQUIPMENT SINCE 1900

Polavision Inside-Car Rear-view Mirror • Polavision and Clear Truck Mirrors • Truck and Bus Air Horn and a complete line of Warning Signals • Directional Signals, including Self-Cancelling Switches and Conversion Kits • Armored and Standard Clearance Lamps • Reflectors • Back-up, Loading, and Stop Lamps • Fog Lamps



**Get the
facts you need...**

**in less time at lower cost
with greater accuracy**

Burroughs Mechanized Accounting

This is one of the amazingly fast and versatile Burroughs Sensimatic Accounting machines that can handle every motor freight accounting job with speed, accuracy and economy.

Motor freight accounting methods have been revolutionized by the efficiency of Burroughs machines. Today, with Burroughs' help, many motor freight companies have cut the clerical time involved in getting out reports by as much as 30 per cent. In some instances, where volume of billing, payroll work, and other accounting has doubled, it is being handled in less time, without extra personnel, on Burroughs machines.

Burroughs mechanized accounting, with such figure-handling machines as the Burroughs

Sensimatic, makes information quickly available. Accurate management and I.C.C. reports, vital to profitable operation, can now be at your finger tips.

Burroughs representatives know how to apply the time- and money-saving advantages of mechanization to motor freight accounting with maximum benefit to you.

Why not write today for the free booklet, "Complete Accounting for Motor Freight Companies." It tells a money-saving, profit-making story that will interest you. Use the convenient coupon below.

WHEREVER THERE'S BUSINESS THERE'S

Burroughs



BURROUGHS ADDING MACHINE COMPANY,
DETROIT 32, MICHIGAN

Please send me a copy of "Complete Accounting for Motor Freight Companies."

Name _____ Address _____

City _____ Zone _____ State _____

Company _____ Title _____



There's Always a "New" Clamp on your hose WITH "Aero-Seal"

The clamp you need is right there when you need it when you've installed Aero-Seals. You re-use the same Aero-Seals again and again—no running to the store or stockroom for replacements!

REPLACE IN ANY POSITION



The Aero-Seal won't crimp, distort hose, cause leakage. Curved band holds pressure even all around—won't cut.

VIBRATION-PROOF

When threads of worm engage with steel slots in band you can't shake an Aero-Seal loose in a million miles of rough driving. Seals tight, stays tight!



ONE-HAND REPLACEMENT



You can install an Aero-Seal any place you can reach with your thumb and one finger. Integral construction... no screws to lose. Screw-driver slot and thumb-grip types.

ANOTHER **BREEZE MARK** PRODUCT

"Aero-Seal" WORM DRIVE HOSE CLAMPS



All Aero-Seals have stainless steel bands. Write today for FREE SAMPLE.

BREEZE CORPORATIONS, INC.
41 South Sixth Street • Newark, N. J.



CCJ Reports

Continued from Page 202

and the freezing of normal scrap circulation.

In spite of the short-supply conditions which prevailed throughout the year, however, a number of important new uses came into production. Some of these were stimulated by the still greater shortages of other nonferrous metals and scarcities of other competitive materials.

On the basis of actual figures for the first 10 months, the year's total production of primary aluminum in the United (TURN TO PAGE 236, PLEASE)

Truck and Plane Cooperate

The army needed 72 desks in a hurry at Castle Air Force Base, Merced, Calif. and they couldn't wait for a railroad freight train to deliver them from Ohio. Air force officials arranged a special stop for this C-124 A cargo plane which was on a transcontinental training flight from Castle. Three large truck-trailers moved the 20,800 lb consignment from the desk manufacturer to the plane, backing up a ramp into the nose of the huge plane. Part of the cargo was lifted into the huge fuselage by an electrically-operated elevator carrying eight desks at a time.

The trailers came from Trailmobile, the desks from Globe-Wernicke and the non-stop shipment from the Cincinnati, Ohio airport to Castle was made in one day.



Get Out of that "TEAR-DOWN" RUT!

A large proportion of the engine overhaul jobs you undertake in your shop is the result of sludge troubles. Today a lot of those overhauls are needless!

DESLUDGE WITHOUT DISMANTLING ... with MAGNUS 755

Desludging without dismantling with Magnus 755 is a wide-spread, thoroughly proved technique. You'll find it described on pages 10 to 13 of the Magnus Truck and Bus Cleaning Handbook. Write for your copy.

On those jobs where the engine is sluggish...pumping oil...on every job where you'd ordinarily pull it in for a tear-down...desludge with Magnus 755 first. Then see how the engine responds. If removal of sludge doesn't cure the trouble, proceed with the overhaul. You've invested about an hour and a little 755. If it does clear up the difficulty, you've saved hours of costly work. If it doesn't, you've a nice clean engine to work on when you dismantle! Desludging the Magnus 755 way frequently cuts an overhaul by freeing stuck rings, lines and screens, and clearing clogged return holes. Periodic desludging by this Magnus method will greatly extend the time between tear-downs.

MAGNUS CHEMICAL CO. • 38 South Ave., Garwood, N. J.
In Canada — Magnus Chemicals, Ltd., Montreal.
Service representatives in principal cities.



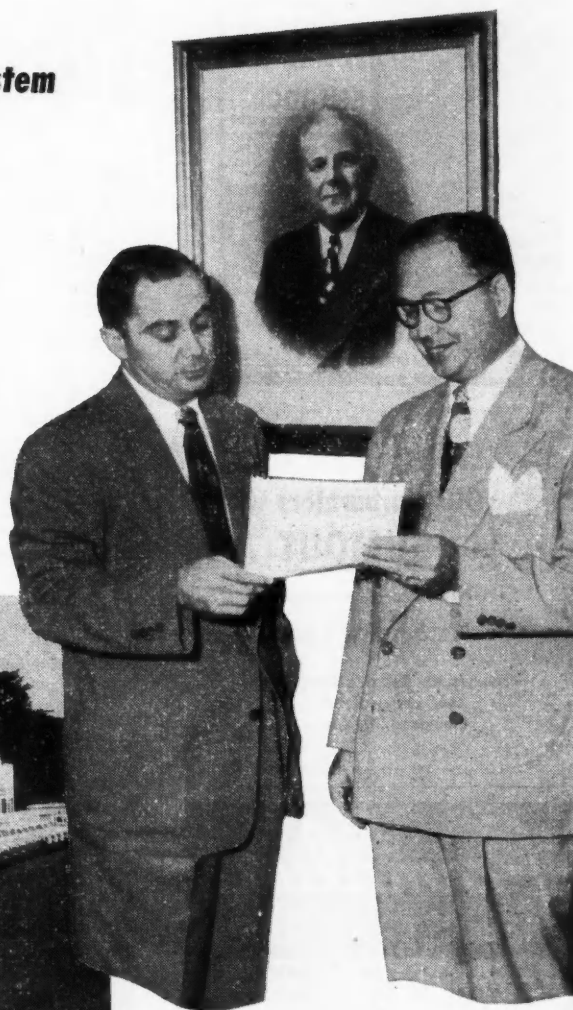
MAGNUS

CLEANERS • EQUIPMENT • METHODS

"We have a 20-year record of dependability and economy with **Gulf Lubricants and Fuels,**"

*says John W. Black, Jr.
President, Dixie Drive It Yourself System*

Mr. Black (left) discusses Dixie's outstanding record with Gulf's Birmingham District Manager. In the background is a portrait of John W. Black, Sr., Dixie founder, and one of the founders and directors of National Truck Leasing System and National Car Rental Association. (Below) Fleet of Foremost Dairy Company, one of the many fleets making up the thousands of vehicles owned and operated by the Dixie System in 11 Southern states. Dixie has the largest privately-owned fleet in the Southeastern area, and one of the largest in the U.S.



"Our use of Gulf products is a family tradition," says Mr. Black. "It's a tradition, however, that is based on cold facts and figures. Our records show that Gulf products have helped the Dixie Drive It Yourself System attain and maintain its fine reputation for maximum service to the public with maximum economy."

Like many other leading operators of commercial vehicles, the Dixie Drive It Yourself System has found that the extra quality of Gulf products is reflected in an extra margin of performance for equipment, greater availability, fewer overhauls, and lower maintenance costs.

Find out how Gulf products can help *your* operation. Write, wire, or phone your nearest Gulf office and ask a Gulf Sales Engineer to call. Gulf Oil Corporation • Gulf Refining Company, Gulf Building, Pittsburgh 30, Pa.

**Gulf Oil Corporation
Gulf Refining Company**

Gulf Building, Pittsburgh 30, Pa.



Time Savers...
KEN TIRE CHANGING **TOOLS**
...they're "Job Designed"

KEN-TOOLS are hand forged from chrome nickel alloy steel...heat treated for extra long life...Best By Actual Test!

KEN-TOOL... LARGEST EXCLUSIVE MAKERS OF TIRE AND WHEEL CHANGING TOOLS

See Your Local Jobber for Our Complete Line
The KEN-TOOL Mfg. Co.
 Akron 5, Ohio

CLEAN
YOUR Carburetors with
GUMOUT
 the "on-the-engine"
 Carburetor Cleaner

Pennsylvania Refining Company
 2687 Lisbon Road
 Cleveland 10, Ohio

Permalux
 FINER DECALCOMANIA

FIRST IN { APPEARANCE
 ECONOMY
 DURABILITY

Made With DuPont "DULUX"
 Write Today for details

THE PERMALUX COMPANY
 500 Rathbone Ave. • Aurora, Ill.

FRINK
SNO-PLOWS
REG. U.S. PAT. OFF.

Both "V" TYPE and
 ONE WAY BLADE TYPE
 hand or power hydraulic control
 FOR ALL MOTOR TRUCKS
 FROM 1½ to 10 TONS

FRINK SNO-PLOWS, INC., CLAYTON, 1000 Isl., N.Y.
 DAVENPORT-BESLER CORP., DAVENPORT, IOWA
 FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

CCJ Reports

Continued from Page 234

States is expected to reach approximately 1,680,000,000 lb. This is almost 17 per cent above the 1950 production.

It would have been still higher had not power shortages in the Northwest and Southeast curtailed production in the plants in those areas during the late summer. By the close of the year, the industry will be producing about 5,000,000 lb of primary metal a day—a rate that has been exceeded only during 1943, the peak production year of World War II.

Increases in primary aluminum annual capacity so far scheduled since the outbreak of hostilities in Korea total approximately 1,500,000,000 lb. About 1,100,000,000 lb of this expansion will be in new plants and 400,000,000 in existing plants.

National Transport Vehicle Show Will Have Enlarged Exhibit Area

Addition of several categories of exhibits have been added to the National Transport Vehicle Show to be held in New York on Feb. 26-28 at the Columbus Ave. Armory. In making the announcement, H. Franklin Turner, chairman of the Automotive Transport Trades Council and president of the show, said that these additions and those to be contracted in the immediate future has rounded out the exhibit area to include every phase of the fleet maintenance and equipment fields.

College Course Offered

Marking the third year in the field, a course in motor carrier economics is now under way in the Graduate School of Business of Stamford University. In the absence of Professor Carl McDowell, transportation expert who handled the original courses, this year's classes are in charge of John Springer, a former Stamford graduate and president of the Western Highway Institute, San Francisco.

NAPA Has New Officers

J. M. Heffelfinger of Boozer-Test Management Service, Indianapolis, Ind., was elected president of National Automotive Parts Assn. for 1952 at the twenty-seventh annual meeting of NAPA in Chicago. William M. Stuart, president of The Martin-Senour Co., Chicago, was elected chairman of the NAPA Manufacturers Council. H. W. Clough, vice president of Belden Manufacturing Co., Chicago, was elected vice-chairman; R. W. Smith, vice president of Grapho Products, Inc., Law-

rence, Ind., was re-elected secretary-treasurer. Henry Lansdale, vice president and general manager of NAPA, was re-elected to that position, as were all directors of NAPA and the NAPA manufacturers group.

Price Hike Announced

The International Harvester Co. has announced increases in the list prices of some of its light models of motor truck chassis, effective December 10.

The motor truck price increases

(TURN TO PAGE 238, PLEASE)

Classified Advertisement

DISTRICT MANAGERS WANTED—Mid-western equipment manufacturer needs district managers for distributor and dealer contact and other field sales work in several territories. Full time traveling. Products are truck equipment, road-building and excavating machinery. Applications are invited from qualified men with field sales experience in these lines. Box 31, Commercial Car Journal, 5601 Chestnut Street, Philadelphia 39, Pa.

HEAVY DUTY
MOTOR TRUCKS
 •
GASOLINE ELECTRIC
GENERATING SETS
DUPLIX
TRUCK COMPANY
 LANSING, MICHIGAN

CAMPBELL
Lug-Reinforced
TIRE CHAINS
 Extra Metal—Extra Mileage
CAMPBELL CHAIN Company
 Factories: York, Pa. and West Burlington, Iowa
 Main Office—York, Pennsylvania

WATER PUMPS

For all cars, trucks, buses, and industrial engines.

REBUILT

by factory methods

GUARANTEED SERVICE

equal to New

Send in your old units

PARTS SPECIALTIES CO.

5984 Lincoln Ave., Detroit 8, Michigan

ENGINEERED

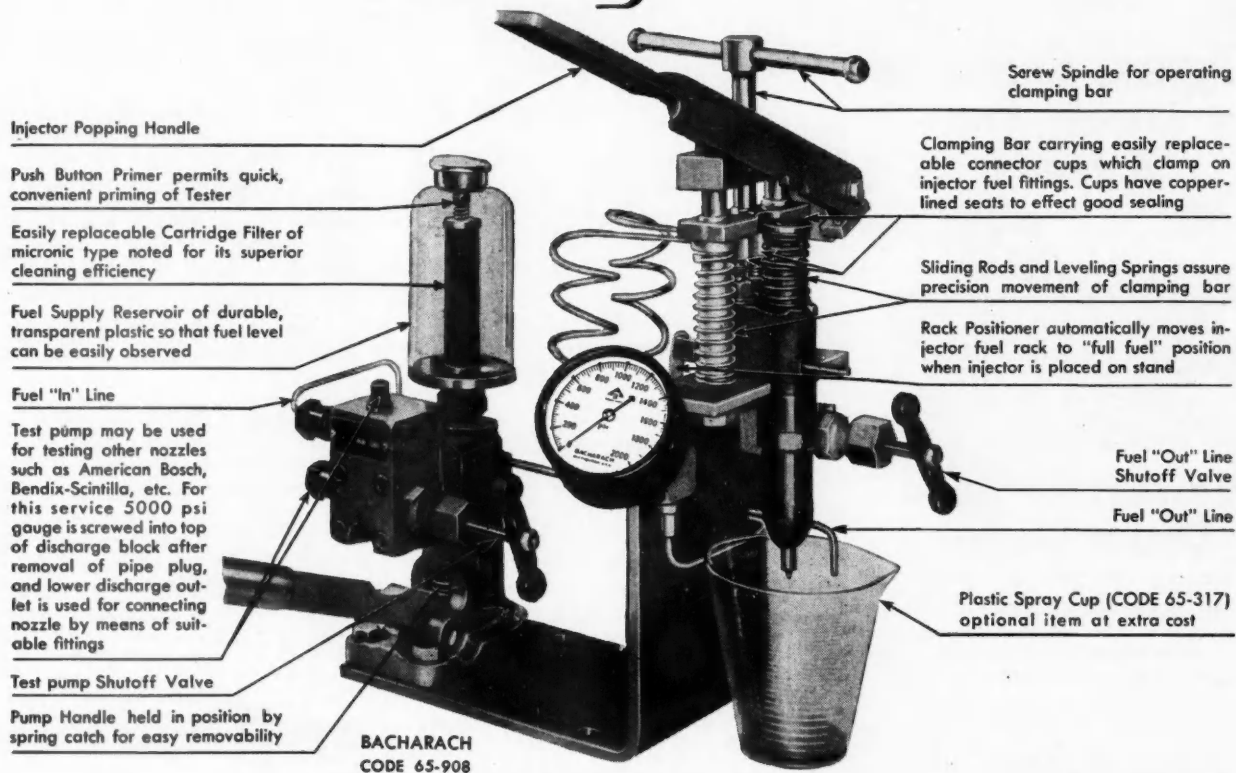
for



DIESELS

BACHARACH INJECTOR TESTER with *SPEED-GRIP* Injector Clamp

for all GM "71" ENGINES



PROVIDES SPEED AND CONVENIENCE NEVER BEFORE ACCOMPLISHED

With this new improved injector tester, you can service GM "71" injectors with speed and accuracy heretofore unequalled. With this tester, you can determine quickly what needs to be done—waste no time doing it and avoid needless replacement of parts. Actual testing time is reduced to the absolute minimum because the exclusive "Speed-Grip" feature makes it possible to clamp the injector securely in position and make the necessary fuel line connections by one simple operation. No tools are required.

This outstanding piece of shop equipment has everything the most exacting Diesel service expert wants in an injector tester, yet it is so reasonably priced that any Diesel shop can afford it.

Complete Line of Specialized Diesel Tuning Tools

The tester featured in this advertisement is one of a complete line of Diesel Tuning Tools designed and built to meet shop service requirements. A folder containing specification sheets on all available equipment will be mailed free to those who return the coupon.

Attractive distributor's proposition to those who qualify.
Write for details today.

BACHARACH INDUSTRIAL INSTRUMENT CO.

7000 BENNETT ST., PITTSBURGH 8, PA.

BACHARACH INDUSTRIAL INSTRUMENT CO.
7000 Bennett St., Pittsburgh 8, Pa.

**Send me free folder on your complete line of
Specialized Diesel Tuning Tools**

Name

Company

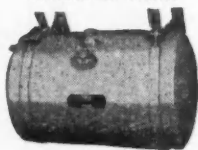
Street

City and State

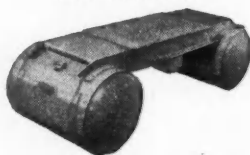


SADDLE TANK

CYLINDER TANK



TOOL BOX UNIT



SNYDER SAFETY TANKS

All three Snyder Safety Tanks pictured here embody all the safety features that assure the utmost safety for the fleet operator, driver and cargo. Snyder "Balanced Construction" design, insures lighter weight, streamlined yet stronger tanks...

Tanks built to stand heavy loads, high speeds and the shock of the road. The Snyder safety diesel tank has all the safety and construction features of the gasoline tank and is equipped with larger outlets to accommodate the heavier fuel lines.

Underwriters Laboratories, Inc.

INSPECTED

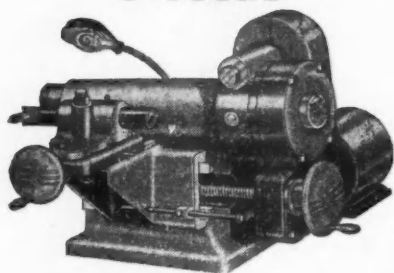
For catalog and address of your nearest dealer, write:

SNYDER TANK CORPORATION

P. O. Box 14, Buffalo 5, New York

P. O. Box 2390, Birmingham 1, Ala.

Biggest Capacity at lowest cost— 8 feeds



Newest Lempco Drum Lathe

CAPACITY—7½" deep, 24" diameter

MOTOR—½ H.P., 3 speeds

FEED—8 feeds including patented Microfeed of .0025"

BENCH OR CABINET MODELS

STANDARD EQUIPMENT—Automatic stop, Goose neck light, cones, spacers, arbors.

OPTIONAL ATTACHMENTS—Hone driver, reamer chuck, grinding wheel and guard, dial indicator, grinding attachment, diamond dresser.

Write Lempco Products, Inc., 5490 Dunham Road, Bedford, Ohio, for descriptive literature on Model 505.

Lempco Invest in
LEMPCO EQUIPMENT
... It pays its own way
CCJ

**COVER 70% OF ALL
MAKES OF TRUCKS
AND BUSES ARE
ZOLLNER EQUIPPED**

ZOLLNER
HEAVY DUTY PISTONS

ZOLLNER MACHINE WORKS FORT MYERS, IND.

CCJ Reports

Continued from Page 236

apply to the company's L-110, L-120, L-130, and L-150 model series and range from 1.3 per cent on one model of the 150 series to 3 per cent on the L-130 series. Dollar increases amount to \$30 on the L-110, \$20 on the L-120, \$40 on the L-130, and \$20 on the L-150 models. Prices remain unchanged on the LB-140, L-160, and the LC-160 models.

OPS Wants More Details

At a recent meeting of the Contract Motor Carriers Industry Advisory Committee, Office of Price Stabilization officials requested that more information be given on the forms specified for adjustment of contract rates and delivery service charges. In the case of contract carriers, this would mean inclusion of dollars-and-cents increases which would result from specific rates applied for.

Brakes Cause of Accidents

Defective brakes were responsible for more than 40 per cent of all truck accidents due to mechanical defects in 1950, according to a report by I.C.C. It showed that brake accidents are increasing faster than any other, accounting for 704 in 1950, compared with 544 in 1949. All types of mechanical defects accounted for 6.6 per cent of all accidents during the year.

END

Please Resume Reading Page 37

SAFE and **SPEAKER**
QUALITY

**PERMANENT
Vulcanized
TIRE & TUBE REPAIRS**
for natural or synthetic rubber.

J. W. SPEAKER CORPORATION
Milwaukee 12, Wisconsin

An Engineered **WATER PUMP**
for every need

**SEVENTY
NINE** to choose from

Wohler Corporation
Lansing 5, Michigan

KINNEAR Rolling Doors

For Trucks or Buildings. Kinnear Rolling Doors open straight up... coil out of the way overhead... save floor and wall space... open and close freely in tightest quarters. All-metal curtain gives rugged protection. Motor or manual control. Any size. Write

The KINNEAR Manufacturing Co.
2100-20 Fields Ave. Columbus 16, Ohio

For better traction
Use **CLAW**
Double-Duty
TRUCK CHAINS

Columbus McKinnon Chain
Corporation
TONAWANDA, N. Y.

Snap-on Tools
THE CHOICE OF BETTER MECHANICS

SNAP-ON TOOLS CORPORATION
8026-B 28th AVE. KENOSHA, WIS.

When you need an extra truck...

Call
HERTZ



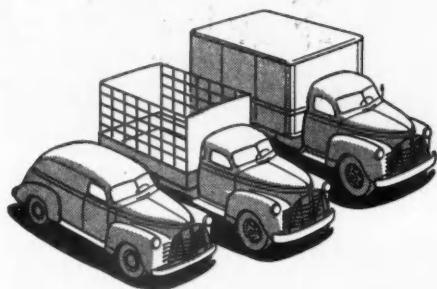
When peak loads demand extra trucks, rent a truck from Hertz. It's easy, it's convenient, and the cost is low.



When your company trucks have trouble on the street... avoid delays... just call the nearest Hertz station.



Businesses not owning trucks often have need of a truck at one time or another. So do individuals, for moving, or other personal needs. For such occasional use, call Hertz.



Rent passenger cars from Hertz too! Hertz, world's largest, has properly conditioned, current model passenger cars for rent in more than 500 cities throughout the United States, Canada, Great Britain, Mexico, Hawaii and Alaska. Rent a new Chevrolet or other fine car and drive it as your own for as little or long a time as you want! Gas, oil and proper insurance are included in the low rates. Countless thousands rent cars from Hertz for business or pleasure—try it!



Why invest in extra trucks... and have to pay to maintain them in long periods of idleness... when it's so easy to rent a truck from Hertz on a moment's notice? You can rent a truck for just as long as you need it, pay only as you use it, with gas, oil, insurance... *everything* furnished but the driver. *When you need a truck, call Hertz!*

Enjoy the many HERTZ SERVICE advantages

Who can rent from Hertz? Large corporations, small companies and individuals too rent trucks from Hertz. You need only a driver's license and normal identification to rent exactly the kind of truck you need for your specific job. In most of the more than 500 cities in the nationwide Hertz System, fleets of 1/2 ton, 1 ton, 2 ton, pickup, panel, van and stake body trucks are available and are always kept in excellent condition.

How much red tape? None at all! Accredited business firms simply call on the phone, make arrangements, send a driver for the truck. Call your Hertz station any time and rent a truck. In a matter of minutes you or your driver will be on the way! You pay only for actual time and

mileage... no hidden charges of any kind.

How small the cost? The rate for the use of a 1 1/2 ton van dual-wheel truck for a full 12 hr. day in Fresno, Cal., is only \$6.50 plus 10¢ per mile, including gas, oil and insurance. Thus, the total cost for a 30-mile trip is only \$9.50. Rates lower by the week or on a long-term lease.

Short term rent—long term lease. Hertz' Truck Lease Plan, for one truck or a fleet... is a proved plan that releases capital investment, and yet gives every single advantage of ownership, at a cost often less than ownership! For complete information about either short-term renting, or long-term leasing, call your local Hertz station, or write to the address below. Learn the facts. You'll profit!

LOOK IN YOUR TELEPHONE DIRECTORY UNDER "H" FOR YOUR LOCAL HERTZ STATION

NATIONAL HEADQUARTERS: **HERTZ Driv-Ur-Self SYSTEM** DEPT. S22, 218 S. WABASH AVENUE, CHICAGO 4, ILLINOIS

STANOLUBE HD-M

REG. U. S. PAT. OFF.

Motor Oil

A new and



Proved by
Actual
Trucking Line
Case Histories



STRAN-STEEL FLOORING

LIFE-TIME FLOORS
FOR LIFT TRUCK LOADS

Made with durable N-A-X HIGH-TENSILE steel, Stran-Steel Flooring is easily installed, takes any type of load, gives you all-steel strength—plus revolutionary nailability design for easy, sure load blocking.

You Save 5 Ways with Stran-Steel Flooring

- **SAVE ON COSTS PER PAYLOAD-MILE**

Stran-Steel Flooring gives enduring strength plus light weight . . . lowers costs per trailer ton-mile.

- **SAVE ON REPAIR AND MAINTENANCE COSTS**

Stran-Steel Flooring minimizes repairs—maintenance is negligible—for the life of the trailer.

- **SAVE TIME EVERY LOAD**

Use time-saving fork trucks with safety.

- **SAVE ON LABOR COSTS**

Reduce man-hours spent in loading and repairs.

- **SAVE ON DAMAGE SUITS**

Lading travels safely, won't pull loose.

Yes, progressive trucking firms estimate that lightweight Stran-Steel Flooring will cost them less per payload-mile. They know that, in a trailer body, the first part to fail is the floor. They know, from tests, that Stran-Steel Flooring is built to last as long as the chassis. Let us show you the dollars-and-cents arithmetic of Stran-Steel Flooring as it applies to your own operation.

STRAN-STEEL FLOORING HELPS KEEP OPERATING RATIO IN LINE

"We can say with confidence that Stran-Steel Flooring has saved us up to \$100 per year per trailer, and will mean more return the longer it is in service. Over the life of a trailer this may amount to as much as 20 per cent of the cost of that trailer."

J. Hendrickson

Superintendent of Equipment,
MICHIGAN MOTOR FREIGHT LINES, INC., Detroit



WRITE TODAY
FOR FREE
ILLUSTRATED
LITERATURE

GREAT LAKES STEEL CORPORATION

Stran-Steel Division

Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION



Thermoid

Announces

Lower Prices

Lower Prices

Lower Prices

*Thermoid Acts
to Meet
New Conditions
You Face Today*

The Automotive Industry recognizes the seriousness of the pricing problems brought about by changes in distribution practices. At the November and December meetings of the wholesalers in Chicago, the situation was decried—appeals to the manufacturer were made in the form of resolutions seeking more realistic and lower list prices. This merely confirmed Thermoid's plans for the future.

Farsighted independent wholesalers have individually urged manufacturers to reprice parts, accessories and supplies so that they and their retail outlets can maintain their competitive position.

Recognizing this situation and doing something about it are two different things. Correcting it calls for courageous action. Traditional practices, which are today outmoded, must be changed. Required is a realistic appraisal of things as they are. Action is demanded—now!

Thermoid, in its 71 years of service to the industry,

IT'S TOPS

**TOP Seller for TOP Profits
because of its Low Price...**

**TOPS for TOP-Engine Lubrication
with New Atomizing Principle...**

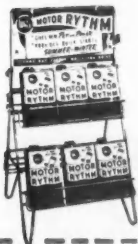


Atomizes lubricant **HERE**
at the manifold . . .
NOT HERE at the lubricator
Atomized lubricant does not
revert to liquid in feed line

Engineered Exclusively for
MOTOR RYTHM!

MORE PROFIT FEATURES

1. Easy to Install, Nothing to Adjust. Rate of flow of lubricant is factory-set. No moving parts. No service problem.
2. Demand is Growing. More and more motorists are asking for top-oilers—recommended for use with hydraulic valve lifters and all engines new and old.
3. Steady MOTOR RYTHM profits keep coming with MOTOR RYTHM sales after you sell a WHITE Lubricator!



● Here's the lubricator you've been waiting for! The WHITE Lubricator is engineered exclusively for use with MOTOR RYTHM and gives better, more effective top-engine oiling because it perfects "atomized" lubrication . . . is mechanically dependable, easy to install . . . needs no adjustment, sells for less than \$10.00! Fully guaranteed.

● You can afford to stock and sell this lubricator because you stock only *one basic model* which fits all cars (through the use of *very low cost* adapters). No large inventory to carry!

● INTRODUCTORY CONSUMER SPECIAL

Lubricator: Regular Retail Price **\$ 8.75**

Free of Extra Charge, 1 Qt. MOTOR RYTHM **1.35**

TOTAL VALUE \$10.10

SPECIAL RETAIL PRICE

\$8.75

for both*

*(Cost of installation kit (\$1.20) where needed, and labor not included)

The New WHITE atomizing principle means that *all* of the MOTOR RYTHM lubricant enters the engine as a vapor. Automatically, the WHITE lubricator gives complete lubricant dispersion to all upper-engine parts. The MOTOR RYTHM cleans, oils and cools, checks wear

and corrosion, helps maintain full compression, pickup and power.

Ask your WHIZ jobber for complete details, and order your stock now. If he cannot supply you, ask him to stock the WHITE lubricator and WHIZ MOTOR RYTHM for you.



R. M. HOLLINGSHEAD CORPORATION

LEADER IN MAINTENANCE CHEMICALS

Camden 2, N. J.

Canadian Offices: Toronto

Warehouses: Chicago

Dallas

San Francisco



**Another
major milestone
in hauling progress**

GMC PRESENTS THE FIRST 2½-TON DIESEL

**At last—Diesel economy and hill-leveling performance
come to thousands of truckers who have never had
any choice but gasoline power in the past!**

FOR EXTRA HEAVY DUTY CLUTCH SERVICE



... VELVETOUCH MATCHED FACING SETS

Now you can lick those extra heavy duty clutch jobs that always slip or burn out due to extreme operating conditions. Your answer is Velvetouch Matched Facing Sets! These all-metal clutch plates with matching facings give you greater clutch capacity... plus a new way to "reclaim" worn, heat checked flywheels and pressure plates. For more details, contact your jobber, our nearest branch... or write The S. K. Wellman Co., 1374 East 51st Street, Cleveland 3, Ohio.



Velvetouch

THE S. K. WELLMAN CO. WAREHOUSING CENTERS

ATLANTA—119 14th St., N. E.
Atlanta 5, Georgia

CHICAGO—1500 South West-
ern Ave., Chicago 8, Illinois

CLEVELAND—1392 East 51st
St., Cleveland 3, Ohio

DALLAS — 3407 Main Street,
Dallas 1, Texas

LOS ANGELES—1110 S. Hope
Street, Los Angeles 15, Calif.

PHILADELPHIA—97 E. Mon-
tana St., Philadelphia 19, Pa.

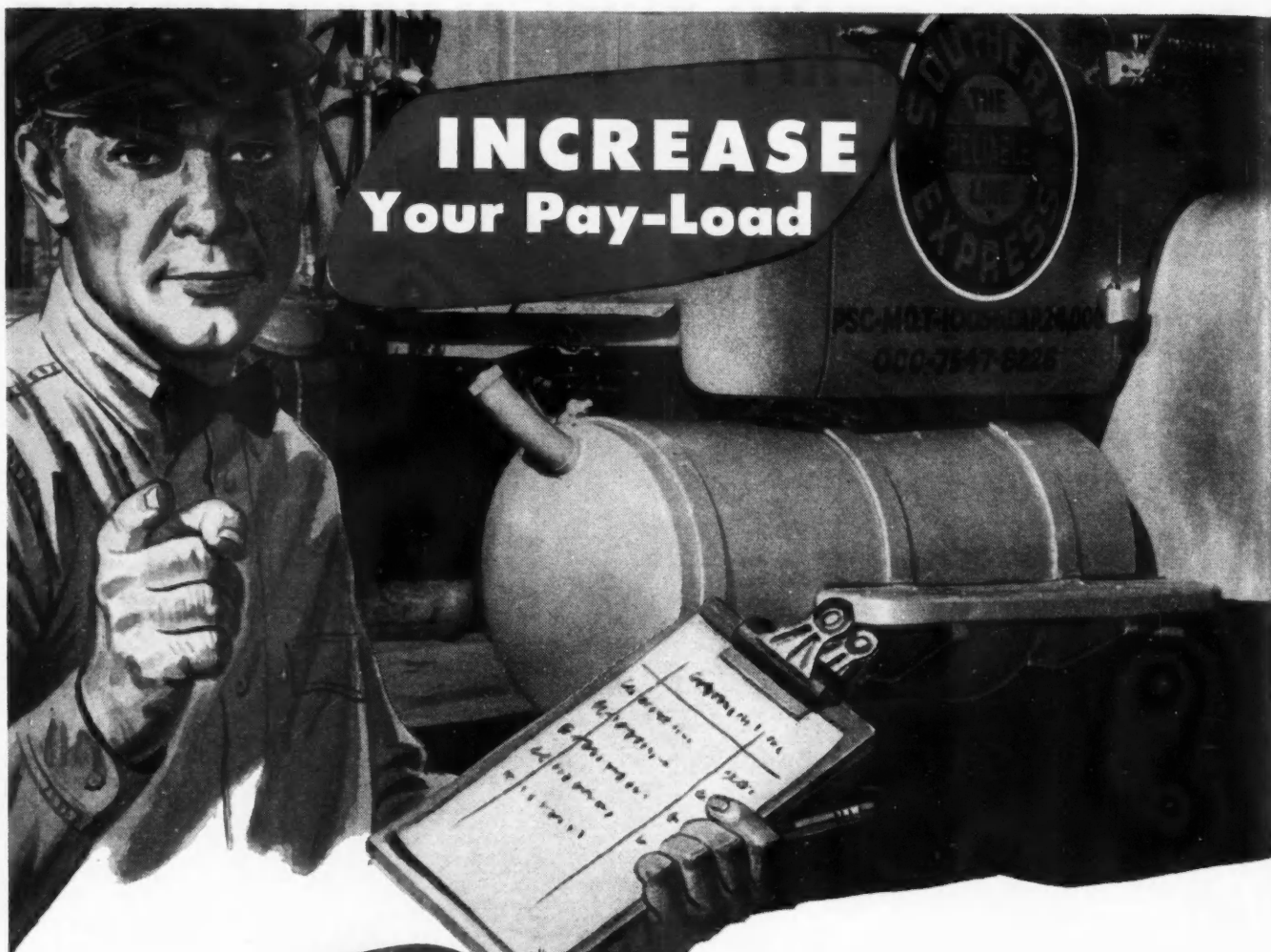
PORTLAND—636 N. W. 16th
Ave., Portland 9, Oregon

SAN FRANCISCO—424 Bryant
Street, San Francisco 7, Calif.

TORONTO, ONTARIO
The S. K. Wellman Co. of Canada,
Ltd., 2839 Dufferin St.

EXPORT DEPARTMENT—
8 So. Michigan Ave.
Chicago 3, Ill., U. S. A.

WASHINGTON OFFICE—
1101 Vermont Ave. N. W.,
Washington 5, D. C.



WITH *Prior* STEP TANKS



This new tank, which mounts forward under the cab, transfers approximately 500 pounds to the under loaded front axle, when equipped with a pair of 60-gallon capacity tanks. Special brackets permit easy installation and use of the original running board. The new Step Tank retains all Prior Safety features; carries the Underwriters' Laboratories seal of approval; and is constructed with a fusible lead safety plug which is separate from any removable part of the tank. Step tanks furnished in 18" diameter in capacities of 76 and 98 gallons and 20" diameter in capacity of 120 gallons in pairs. Approximately 14" ground clearance on 20" diameter and 16" ground clearance on 18" diameter.

PRIOR PRODUCTS, Inc.

Box 7608, Dallas, Texas • Box 349, Middletown, Ohio

You'll feel safer...



... and BE safer...

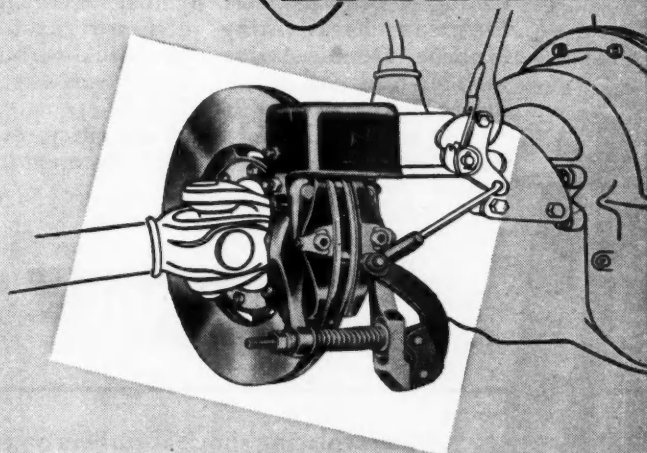
TRU-STOP is a ventilated, disc-type brake which attaches to the drive shaft of all trucks and buses. Hand-operated lever mechanism exerts equal and opposite pressure using entire surfaces of both shoes. Simplicity of TRU-STOP design permits adjustments, even relining, without dropping drive shaft.

TRU-STOP Brakes serve in an emergency, as an auxiliary brake on long downgrades, and as a positive parking brake. The smooth gripping action, the "feel" of deliberate deceleration when the brake is applied in a moment of emergency, makes the driver feel safer . . . makes the equipment safer. TRU-STOP Brakes are an investment in safety.

You can have TRU-STOP Brakes installed at the factory on your new bus or truck . . . or you or your local dealer can install them on your present equipment. TRU-STOP Brakes prevent accidents, eliminate road delays, reduce servicing costs. Is it worth the gamble *NOT* to install TRU-STOP Brakes?

See your dealer today or write for literature

with
TRU-STOP
Emergency
BRAKES



ACCO

601 Stephenson Bldg., Detroit 2
2475 Porter Street, Los Angeles 21 • Bridgeport, Conn.

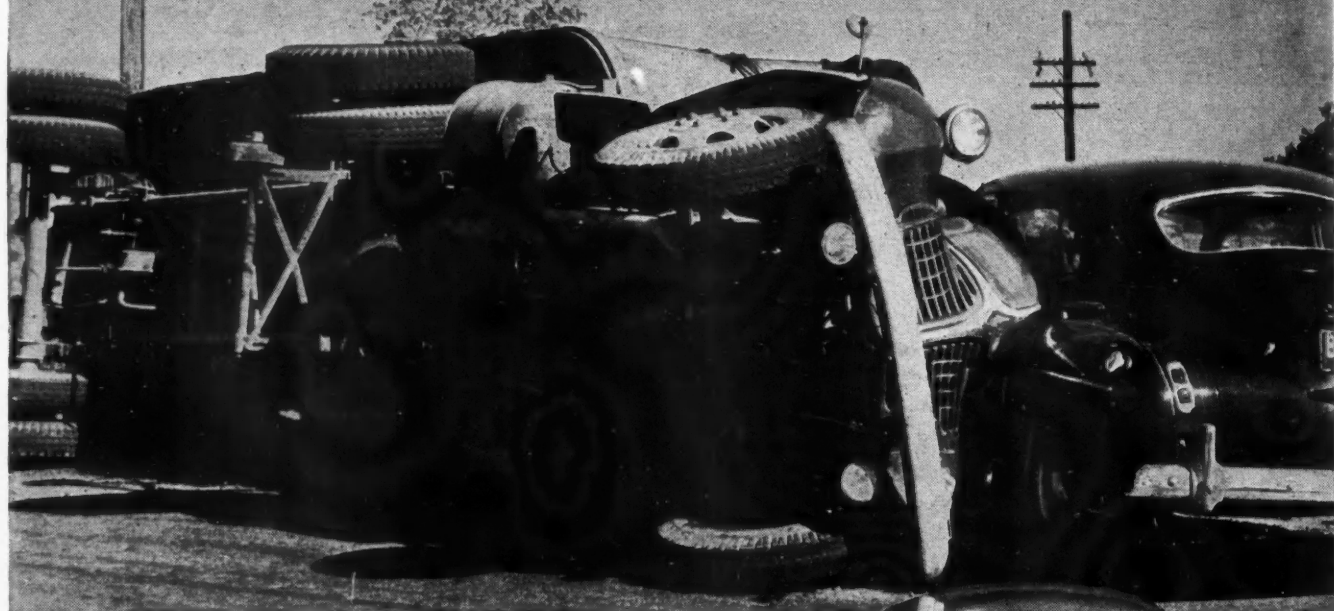
**AUTOMOTIVE AND AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE**



In Business for Your Safety

"Intentionally Better"
TRU-STOP
Emergency
BRAKES

"Driver Disease" CAN BE COSTLY!



MONROE E-Z Ride* Truck Seats Keep Operators Fit and Alert

A worn-out truck driver is a bad safety risk. According to a reliable survey, 1 driver in 3 who had an accident caused by falling asleep was a truck driver.

Truck accidents are plenty costly in cargo and vehicle loss. Expensive lawsuits often result. And you, Mr. Fleet Owner, are the loser!

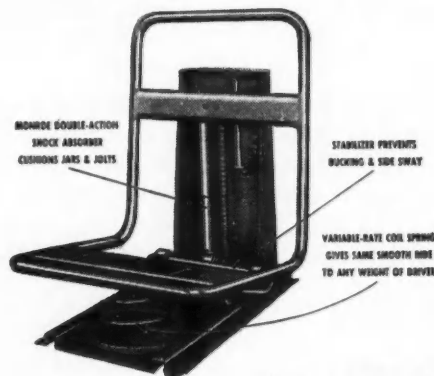
Monroe E-Z Ride Truck Seats keep your drivers feeling more fit—alert against accident dangers. Fatiguing, back-busting jolts are cushioned by a Monroe Double-Action Shock Absorber, plus a variable-rate coil spring that gives any weight of driver the same smooth ride.

For increased safety and efficiency, Monroe E-Z Ride Truck Seats are a sound investment for any fleet owner—for you.

*Reg. U.S. Pat. Off.



When replacing shock absorbers on your cars or trucks, always specify Monroe Direct-Acting Airplane-Type Shock Absorbers—the choice of leading automotive engineers.



E-Z Ride Truck Seat with cushions removed.

MONROE AUTO EQUIPMENT CO.

Monroe, Mich. — World's Largest Maker of Ride Control Products

Indianhead Truck Lines haul 300 extra gallons per trip with transports made of COR-TEN



U-S-S COR-TEN saves about one ton of deadweight in this 7,000-gal. unit built by Butler Manufacturing Co., Kansas City, Mo. Carrying 300 more gallons of gasoline each trip it helps Indianhead Truck Lines to deliver more petroleum products at less cost throughout Minnesota, Wisconsin and in Iowa, Michigan, South Dakota and North Dakota. Indianhead has 74 units like this, most of them of COR-TEN.

PAYLOAD is the pay-off in today's highly competitive oil transportation business. That's why Indianhead Truck Lines of St. Paul, Minn., buy rugged, light-weight oil transports made of U-S-S COR-TEN.

Specially designed to take advantage of COR-TEN's characteristic properties, these units built by the Butler Manufacturing Company of Kansas City, Mo., are both lighter and stronger than transports of ordinary design made of ordinary steel. In the 7000-gallon Indianhead transport shown, the use of COR-TEN alone, saves almost one ton of deadweight.

Getting rid of this excess poundage permits Indianhead to haul 300 gallons *more* payload on each trip these units make. These *bonus*

gallons hauled in place of deadweight build up an *extra* revenue of thousands of dollars annually for Indianhead.

COR-TEN cuts operating costs

Here's what Mr. L. A. Wilsey, President of Indianhead Truck Lines, says: "Elimination of deadweight is important to us because the difference between profit and loss in the oil transportation business is dependent on the saving of a few pennies on each haul—that's why we like Butler's weight-saving design and their use of COR-TEN."

These COR-TEN units are rugged, too

Weight-saving has little value if strength is sacrificed. How do these transports made of COR-TEN stack

up against ordinary transports in day-after-day, over-the-road hauling?

Indianhead has several "million-milers" in its fleet of COR-TEN Transports. Many of them have operated *without a minute's down-time* due to tank failure. Says Mr. Wilsey, "On the basis of our records, these transports are more economical to operate than any others we know about. We've bought them again and again because they give us maximum payload and a minimum of maintenance."

Write us and find out how little it costs to build your equipment lighter, stronger and more profit-producing with U-S-S COR-TEN.

AMERICAN STEEL & WIRE . . . COLUMBIA-GENEVA STEEL . . . NATIONAL TUBE
TENNESSEE COAL & IRON . . . UNITED STATES STEEL SUPPLY, WAREHOUSE DISTRIBUTORS
Divisions of UNITED STATES STEEL COMPANY, PITTSBURGH
UNITED STATES STEEL EXPORT COMPANY, NEW YORK



U-S-S HIGH STRENGTH STEELS

U-S-S COR-TEN · U-S-S MAN-TEN · U-S-S TRI-TEN



1-1396

UNITED STATES STEEL

Renew Piston Rings

in less than **4** hours



D & C Steering Idler and Third Arm Bracket Assembly

This factual picture story and time study was taken on a 2-ton Chevrolet truck, Series 6100, in the dealers service department. To insure a fair time comparison between the I-R Impactool and conventional hand tools, the same mechanic performed the service operation both ways.

We encourage you to prove this in your own shop by making similar tests. Your Jobber will be glad to make a demonstration.



R & R Valve Cover



R & R Rocker Arm Assembly



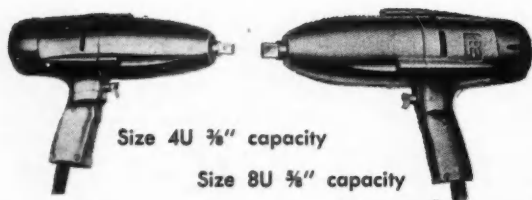
R & R Manifold

Since the *complete* job was performed several times with and without an Impactool, and all other factors were the same, the average time savings shown here were a *direct* result of the use of an Impactool.

Time using hand tools	5 hours 10 minutes
Time using IMPACTOOL	3 hours 55 minutes
Time Saved	1 hour 15 minutes

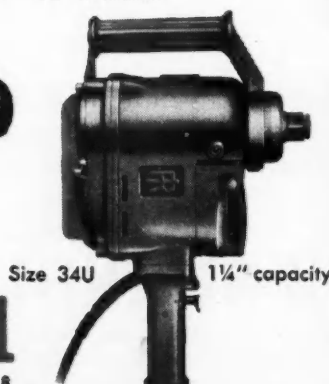


R & R Cylinder Head



Size 4U 3/8" capacity

Size 8U 1/2" capacity



Size 34U

1 1/4" capacity



R & R Connecting Rod Bearing Caps

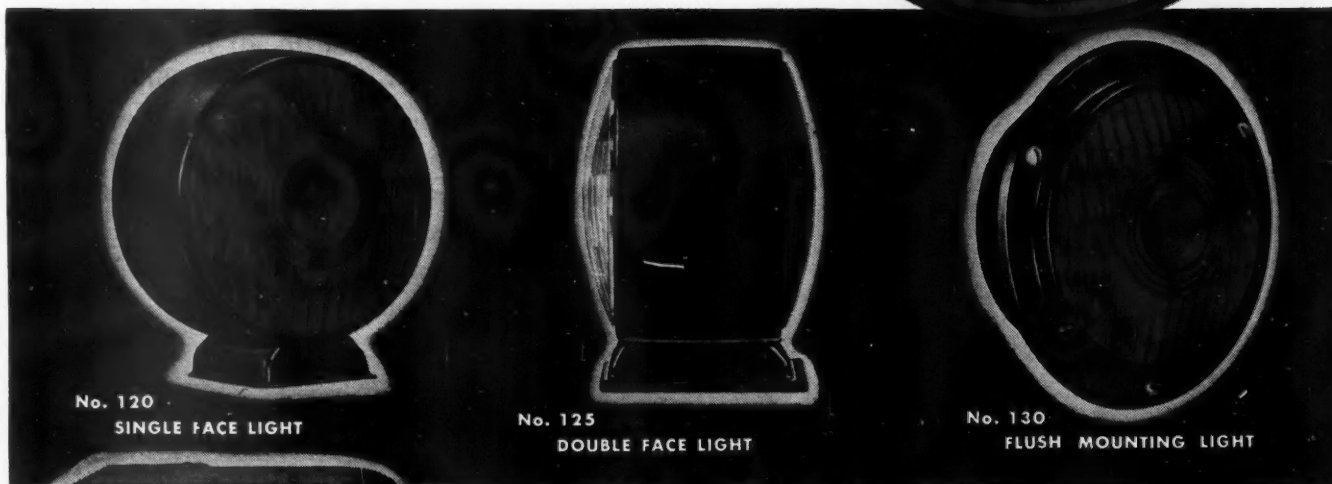
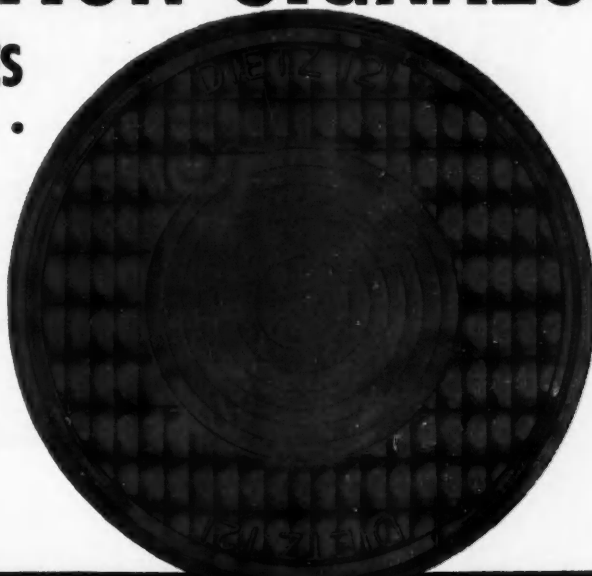
Ingersoll-Rand
11 Broadway, New York 4, N. Y. 653-18
Also

REAM • TAP • DRIVE SCREWS • EXTRACT BROKEN STUDS • DRILL • DRIVE AND REMOVE STUDS • WIRE BRUSH • RUN HOLE SAWS

100% GREATER VISIBILITY FOR YOUR DIRECTION SIGNALS

EXCLUSIVE NEW DIETZ LUCITE LENSES PROVIDE EXTRA ADVANTAGES

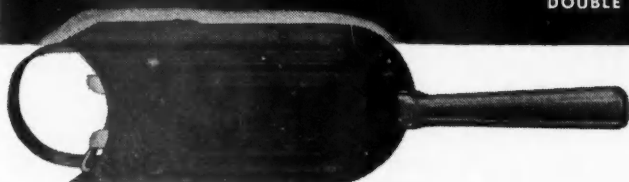
- Photometric tests prove DIETZ Lucite Lenses transmit twice as much light as glass. Far exceed I.C.C. and latest S.A.E. specifications.
- Exclusive design Lucite plastic Lenses give higher visibility, are practically unbreakable, last much longer.
- DIETZ Light Units are much sturdier. Heavy rubber pad protects Lights, waterproofs mounting.
- No disassembly needed when mounting. A single screw provides for changing bulb and lenses.
- Simplified, sturdy 2 bolt mounting of Single and Double Face Units—4 positions, vertically or horizontally. Can't jar loose.
- Self-cancelling or non-cancelling Switches with Flashers. E.T.L. tested for over 175,000 cycles of continuous operation.



No. 120
SINGLE FACE LIGHT

No. 125
DOUBLE FACE LIGHT

No. 130
FLUSH MOUNTING LIGHT



DIETZ SELF-CANCELLING SWITCH No. 111-C
DIETZ NON-CANCELLING SWITCH No. 111-N

No. 120-A

No. 125-A

No. 130-A

**CLASS "A"—TYPE 2 SIGNAL LIGHTS
WITH DIRECTION ARROWS**

For unmistakable signalling—vivid Amber arrows on black backgrounds. Single Face, Double Face and Flush Mounting models available individually and in popular Sets. Typical fine DIETZ construction, fully tested and approved.

Now, many States approve only Class "A"—Type 1 Direction Signal Lights, and other States have laws pending which will allow only Type 1 Lights. These brilliant DIETZ Type 1 Lights with exclusive, new Lucite plastic Lenses are approved for use in every State requiring approvals. They far exceed all I.C.C. and latest S.A.E. specifications. Ask your jobber about these low cost, high performance Direction Signal Lights, Switches and Sets today! R. E. Dietz Company, 225 Wilkinson St., Syracuse, N. Y.

OVER A CENTURY OF *Safety* LIGHTING **DIETZ**

"In our COAST-to-COAST operation DAYTON THOROBREDS give us REAL economy!"



W. J. Robinson, President
Denver-Chicago Trucking Co., Inc.
Denver, Colorado



DENVER-CHICAGO IS THE NATION'S ONLY COAST-TO-COAST CARRIER

Its routes cover 7400 miles. Terminals
number sixteen. 1100 vehicles moved
over 320,000 tons of freight in 1951.

"DAYTON THOROBREDS take retreading better than most popular make tires because of their tough carcass construction," Mr. Robinson states. "Our total equipment mileage for 1951 will come close to 40 million, so the matter of retreading — in addition to fine original mileage — is a mighty important factor in the economy of Denver-Chicago's operation.

"Also, the extra-safe, non-skid tread designs on Dayton Thorobreds are of extreme importance in providing protection for our drivers and equipment on dangerous mountain routes."

**DAYTON THOROBRED TRUCK TIRES
GIVE LOWEST COST PER MILE**



One of seven great Dayton Thorobred truck tires — each engineered for a specific type of service.



Dayton's reputation for making better tires is easily seen when you check these facts:

- More cords per inch in each ply.
- More rubber and a more even insulation coating around each stronger Rayon Cord.
- More steel wire in the beads.
- More material in the plies that wrap farther around the beads and up the sidewalls.

That's why Thorobreds are so widely known for their super-strength tire carcasses . . . why Dayton Thorobred Truck Tires outperform them all!

Dayton Rubber

DAYTON RUBBER COMPANY, DAYTON 1, OHIO—SINCE 1905

A COMPLETE LINE OF TRUCK AND PASSENGER TIRES—EVERY ONE A THOROBRED!

Do YOUR fleet engines perform like these?



...highway freight

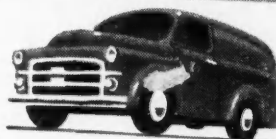
Carolina Freight Carriers Corporation, Cherryville, N.C., operate 103 diesel and 61 gasoline tractors, averaging 12,500 miles per month each in over-the-road service. Shell Rotella Oil has been used exclusively in all units for over five years. Ring and valve life for diesels is 200/250,000 miles; for gasoline engines, 150/160,000 miles. Typical diesel bore taper runs 0.004" per 300,000 miles; in gasoline engines, 0.008" per 250,000 miles.



Diesel ring and valve life is 200/250,000 miles.

...city delivery service

Of 125 gasoline units in Goldblatt's retail store delivery fleet, Chicago, 95% reach scheduled unit overhaul at 90,000 miles with no other engine repair.



Reach overhaul at 90,000 miles without other engine repair.

...city bus service



Average initial ring life 125/150,000 miles.

A fleet of 66 city gasoline buses and 10 city diesel buses operated by Portland Coach Co., Portland, Maine, averages 2,700 miles per month each. After 2 years' exclusive use of Shell Rotella Oil, here's the record: *average* initial ring life is 125/150,000 miles with 10% of the fleet in the 150/200,000 mile bracket. Taper, at these mileages, runs 0.005" and journal wear 0.002".

"All above use SHELL ROTELLA OIL Exclusively"

SHELL OIL COMPANY



50 WEST 30TH STREET,
NEW YORK 20, N. Y.
100 BUSH STREET,
SAN FRANCISCO 6, CALIFORNIA

Send
coupon
for the
book!



Shell Oil Company
Please send me the Shell Rotella Oil Book

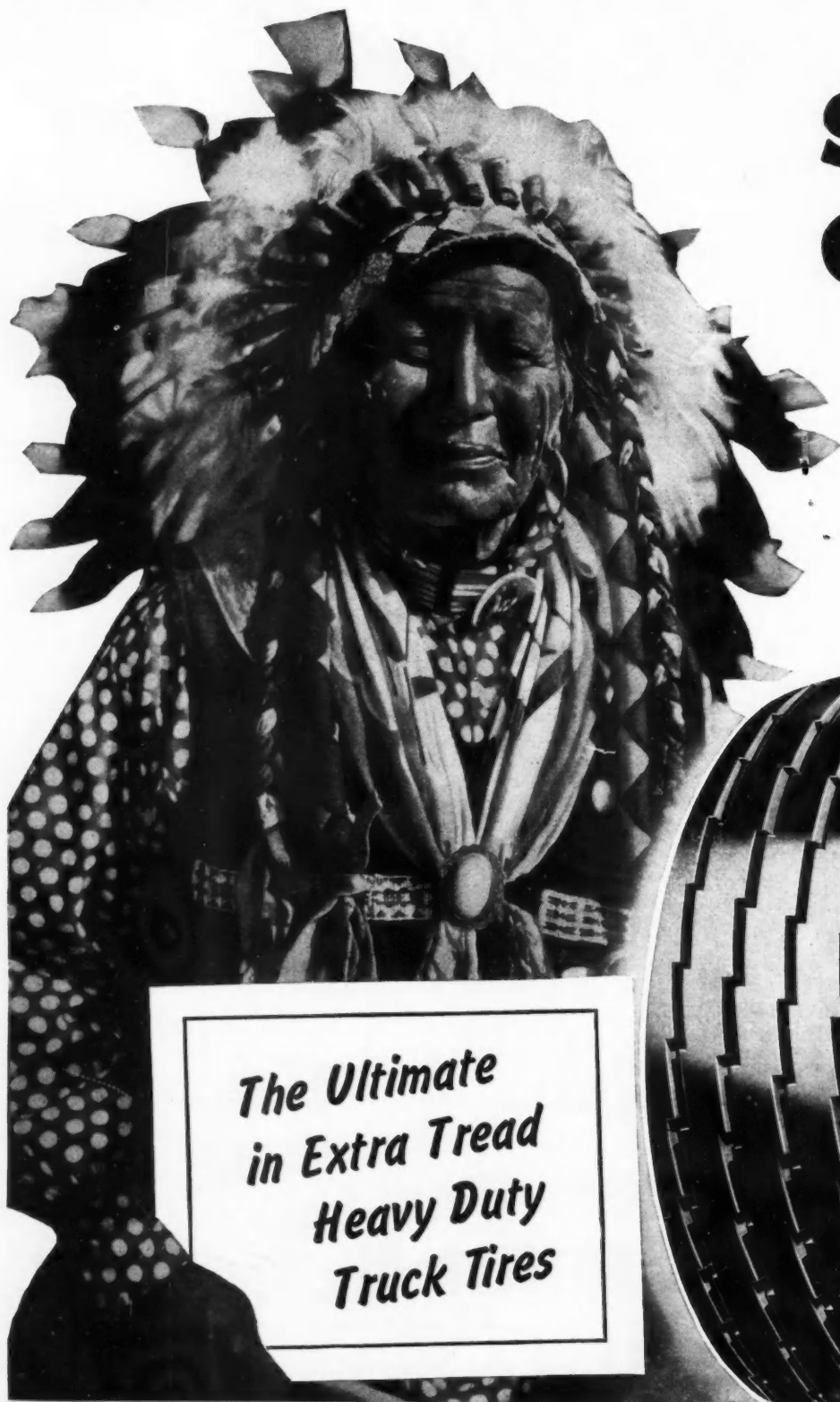
Name

Company

Address

→MOHAWK→

SUPER CHIEF TRUCK

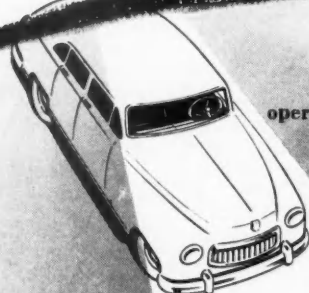


THE MOHAWK RUBBER COMPANY

Plants: Akron, Ohio • Littleton, Colorado

Export Department, 1819 Broadway, New York 23, N.Y. • Cable "Mohawk" New York

Rewire —for Good



Worn and defective wires are doubly dangerous—They cause operating failures of headlights, horns, and other accessories—They may short-circuit to cause fires. For safety's sake—rewire for good—rewire with Belden.

The complete profit line of lighting wires.
Belden Manufacturing Company
4695 W. Van Buren St., Chicago 44, Ill.

To You,
Belden's Golden Anniversary Means

—product performance that can come only from a "know-how" that has grown through actual service since the early days of the automotive industry.

—an ability to co-operate in pioneering new wires to meet or anticipate industry's growing needs.

In the years that follow

This Belden Program Is—

—TO BE
CONTINUED



Belden
Automotive **WIRE**

BATTERY CABLES • SPARK PLUG WIRES • LIGHTING WIRES

HERE'S HOW—the

DELCO LINE

REDUCES

operating, maintenance

HEADACHES

★ **DELCO ASSURES YOU—**

- ★ Equipment Protection
 - ★ Unit and Parts Availability
- ★ Replacement Ease
 - ★ Schedule Stability

Fleet owners know that Delco shock absorbers pay off on performance . . . can be counted on to stand the gaff under the roughest operating conditions. No wonder more cars, trucks and buses are Delco-equipped than with any other make! Delco provides a complete line of quality-built shock absorbers—builds the correct size and type of shocks for every vehicle in your fleet. That's why you can depend on Delco to supply the right shock absorbers for your requirements—top performers that will help cut your operating and maintenance expenses. The coast-to-coast United Motors organization makes Delco replacement units and parts readily available.

SHOCK ABSORBERS

for ALL cars, trucks & buses

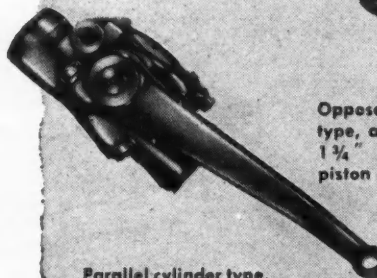
Direct acting type,
available in 1",
1 3/8", 1 3/4", 2"
and 2 1/2" piston
diameters



Opposed cylinder
type, available
only in 1 1/2" pis-
ton diameters



Opposed cylinder
type, available in
1 3/4" and 2 1/4"
piston diameters



Parallel cylinder type,
available in 1 1/2"
piston diameter



DELCO SHOCK ABSORBERS—
A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

DELCO PRODUCTS

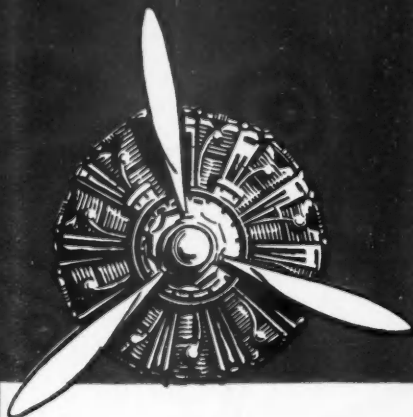
Division of General Motors Corporation, Dayton, Ohio

KNOW-HOW IS IMPORTANT!



DEFENSE PRODUCTION!

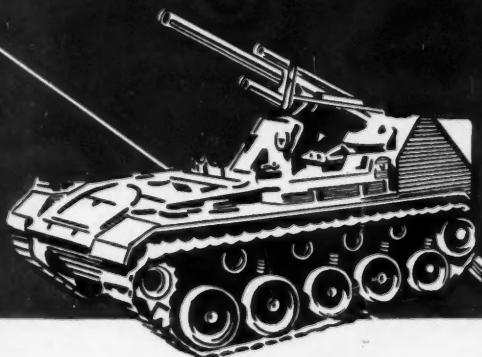
Greatly Increased Today, and Ready for Far Greater Demands Tomorrow!



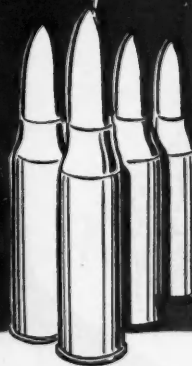
**AIRCRAFT
ENGINE PARTS**



**ROCKETS and
OTHER PROJECTILES**



**WHEELS, BRAKES, HUBS and DRUMS
FOR ALL MILITARY VEHICLES**



**SHELLS and
SHELL CASINGS**

(Also Electric Brakes, Brake Power Equipment, Power Chambers and Valves for All Military Vehicles)

KELSEY-HAYES WHEEL COMPANY

EXECUTIVE OFFICES, MILITARY AVENUE • DETROIT 32, MICHIGAN



* Manufacture suppliers of wheels, brakes, hubs and drums for passenger cars, trucks, buses and heavy machinery.
* Electric brakes, brake power equipment, power chambers and valves for civilian vehicles.
* GREAT PLANTS: McKeesport, Pa.; 7 Plants in Detroit; Jackson, Mich.; Columbus, Ind.; San Antonio, Tex.; London, Eng., Canada.

INSIDE and OUT...

100% Ausco Quality!

HYDRAULIC

Axle Jacks

3 TO 12-TON CAPACITIES

Take a close look at the ONLY HYDRAULIC AXLE JACK which is COMPLETELY MADE in ONE PLANT! From its serrated ram head down to its leak-proof base, this jack is 100% AUSCO, inside and out!

100% Ausco Quality!

ON THE OUTSIDE

THE CASTING is one of the most important parts of a hydraulic axle jack in terms of performance, stamina and safety. That's why Ausco makes its own jack castings, and makes them with the same high quality control and precision, which for 40 years has gone into original equipment castings supplied to leading car factories. These Ausco-developed NON-POROUS castings are guaranteed to be LEAK-PROOF and UNBREAKABLE!

EXCLUSIVE UNDER LIP on lever socket makes lever insertion easier, quicker!

100% Ausco Quality!

ON THE INSIDE

All the mechanism on the inside is Ausco-made, Ausco-quality controlled, Ausco-engineered with such important features as:

STRAIGHT LINE OIL FLOW to prevent accumulation of dirt in the pump. This helps start lifting action INSTANTLY . . . eliminates lost motion and wasted elbow grease!

MIRROR FINISHED ram and cylinder tubing for smoother operation.

REMOVABLE PUMP AND RAM, for easy servicing without disassembling the jack.

LEAK-PROOF BASE ●

INSTANT
LIFTING ACTION ●

RUGGED,
TROUBLE-FREE ●



LATEST AUSCO JACK CATALOG
contains the complete showing of all
AUSCO Hydraulic and Mechanical Jacks.
Send for your free copy today.

AUTO SPECIALTIES MFG. CO. • Dept. CC-2, St. Joseph, Mich. • Other plants: Hartford and Benton Harbor, Mich.; Windsor, Ont., Canada

AUSCO
Jacks

Thompson

MAKES THE PISTONS

A section of Thompson's huge piston stock—always available for cars, trucks, buses, tractors and marine and industrial engines.

FOR OVER 50 YEARS Thompson Products has been making precision parts for the automotive and aircraft industry. Among these many parts, pistons of all kinds for gasoline or diesel engines, are made with the skill that comes only with years of experience—backed by metallurgical know-how and the last word in manufacturing facilities.

THE THOMPSON STEEL-BELTED PISTON, for example, is revolutionary in design and structural strength. Cast-in steel belt controls expansion at all engine temperatures. Permits closer fitting without danger of seizing or scoring. More power, less oil consumption.

For every rebuild job and for your customers, be sure it's Thompson Pistons, alloy or cast iron.



Thompson's famous STEEL-BELTED PISTON—one of the many Thompson FIRSTS—to give better engine performance in cars, trucks, buses and tractors.

ENGINE PARTS

Valves • Valve Springs • Valve Guides • Valve Retainers • Valve Rotators • Valve Seat Inserts • Cylinder Sleeves • Pistons • Piston Pins • Piston Rings • Connecting Rods • Engine Bearings • Water Pumps • Water Pump Parts

CHASSIS PARTS

King and Spring Bolts • Bushings • Tie Rods • Drag Links • Independent Front Wheel Suspension Parts • Shock Absorber and Stabilizer Links • Spring Shackles

Thompson FOR ENGINE AND CHASSIS PARTS—THE ORIGINAL EQUIPMENT LEADER

See Your **Thompson**  **Products** *Jobber*

CLEVELAND • DETROIT • LOS ANGELES • ST. CATHARINES, ONT.



Velvet smooth performance

Long torque converters offer the automotive manufacturer important advantages in design, performance and cost.

Power transfer is smooth—dependably smooth—torque multiplication of better than 2 to 1 at stall. The converter is direct air-cooled for simplicity and trouble-free service.

Assembly units are fabricated almost entirely from stampings, for low-cost manufacture.



LONG MANUFACTURING DIVISION

Borg - Warner Corporation

DETROIT 12, and WINDSOR, ONT.

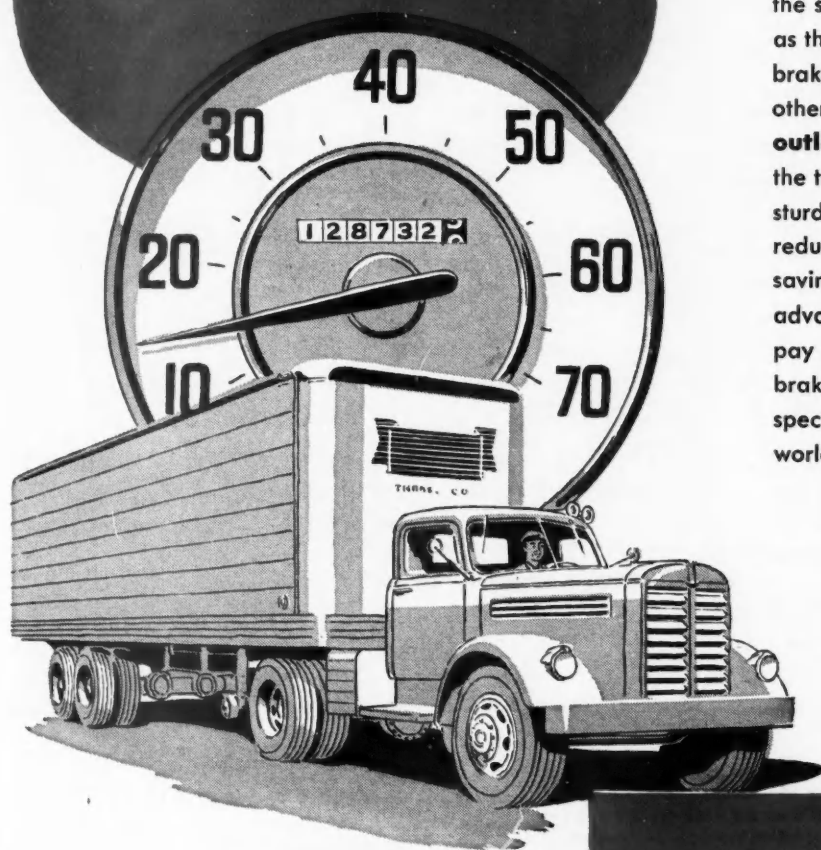
LONG

CLUTCHES • RADIATORS • TORQUE CONVERTERS
OIL COOLERS

*Bendix-
Westinghouse*

THE WORLD'S MOST TRIED
AND TRUSTED

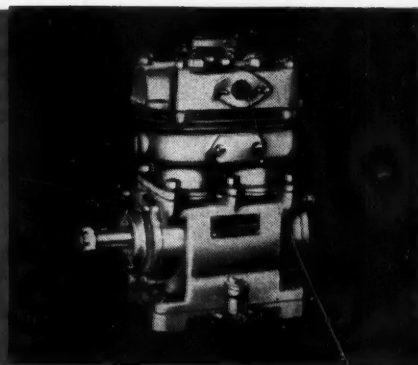
AIR BRAKES



Engineered to Outlast Any Other Braking System

Find out for yourself—ask the owner of any truck equipped with Bendix-Westinghouse Air Brakes and he'll tell you they're a sure guarantee of long years of **reliable performance**. The Bendix-Westinghouse Compressor, for example, is designed and built on the same **proven reciprocating piston principle** as the engines in your trucks. This husky unit, like the brake valves, governor, brake chambers and all other Bendix-Westinghouse components, frequently **outlasts the engine** . . . often is still in use after the truck itself has been retired from service. It is this sturdy construction . . . simplicity of design . . . and reduced number of moving parts that produce savings—**big savings** on any hauling job. So take advantage of this **remarkable record**—make it pay off for you. Get a **lifetime system** and more braking mileage on linings, drums, and tires, by specifying smooth-acting Bendix-Westinghouse—the world's most tried and trusted air brakes!

The Bendix-Westinghouse Compressor—heart of the air brake system—performance proven over more miles on more installations than any other compressor available!



BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY
ELYRIA, OHIO

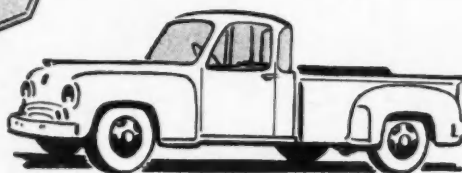
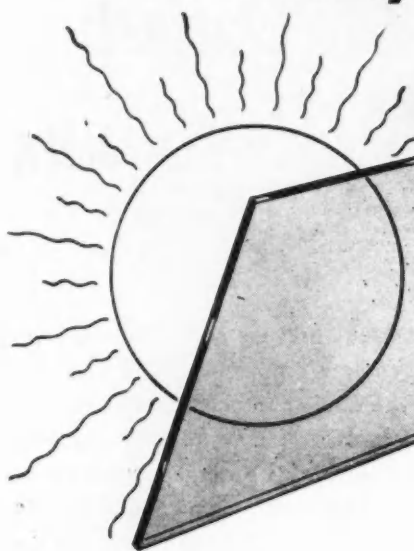
BERKELEY, CALIF.

Why SOLEX

HEAT-ABSORBING

SAFETY GLASS

is "the best glass under the sun!"



● When you equip your trucks with windshields and windows of Solex Safety Glass, you provide drivers with a feature they have long hoped for. That's because Solex—whether Solex Duplate, Solex Duolite, or Solex Herculite—reduces glare, keeps out heat. That means less nervous tension and fatigue . . . more comfort for drivers.

HERE ARE FIVE COGENT REASONS WHY THIS IS SO:

REDUCES GLARE. The soft greenish color of Solex, although almost unnoticeable when looking through the glass from inside the cab, helps to guard against eyestrain from the glare of bright sunlight and from headlights during night driving. It transmits about 72% to 74% of the sun's visible light. The light comes in, but the glare stays out!

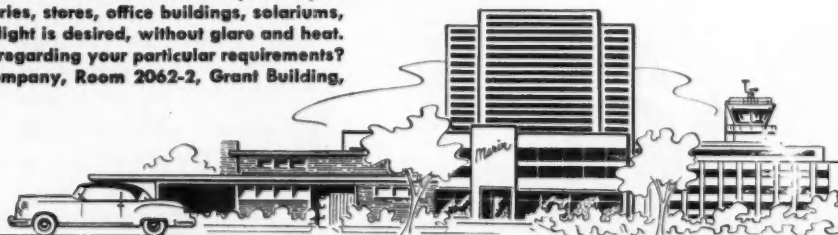
KEEPS OUT HEAT. By absorbing the direct solar radiation, Solex keeps the cab interior ten to twenty degrees cooler than outside temperature.

ADDS TO SAFETY. Solex Duplate affords better visibility. Being a true ground and polished Plate Glass, Solex Duplate has the perfect-vision properties of regular polished Plate Glass, *plus* glare and heat reducing qualities. Drivers can see distant objects without straining or squinting. This reduces fatigue . . . assures greater safety in driving.

DOESN'T FADE. Solex will retain its protective properties for the life of the truck . . . it will not fade.


TRUE SAFETY GLASS. Each Solex windshield or window is clearly marked in the corner with the Solex trade-mark etched into the glass.

A PROVEN PRODUCT—We suggest you give serious consideration to Solex Safety Glass for windshields and windows in the design and construction of your models. It's a tried and proved product, in use in thousands of installations all over the country. In airport control towers, railroad cars, buses, homes, factories, stores, office buildings, solariums, it has been found ideal where adequate, soft sunlight is desired, without glare and heat. Why not consult with our Safety Glass specialists regarding your particular requirements? There is no obligation. Pittsburgh Plate Glass Company, Room 2062-2, Grant Building, Pittsburgh 19, Pa.



PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY



Here's why Cog-Belts* last up to 3 times longer than other automotive belts!

The reason *why* Dayton Cog-Belts outwear other belts in fleet operations is no *secret*. The reason behind the Cog's long life is the exclusive, patented "cog" that lets the belt *bend easier* than any other belt. For it is *constant bending*—over fan pulleys, generator pulleys, compressor pulleys, and drive pulleys—that makes ordinary belts break. The continual bending, plus the heat generated by that bending, finally breaks the belt, just the way you'd break a wire by giving it a few quick bends.

Because Cog-Belts bend easier, they run cooler, last longer. How much longer? Here are typical fleet reports: "15,000 *more* miles per fan belt" . . . "fan belt costs cut 66%" . . . "21,964 *extra* service miles" . . . "belt life increased from 4 months to more than a year!"

Get savings like those for *your* fleet! Call your Dayton Jobber, and ask about his complete fleet program, and for *free* copies of Dayton's Fleet Safety Posters. Or write:

DAYTON RUBBER COMPANY
DAYTON 1, OHIO

*T.M.

Dayton Cog-Belts are the only belts scientifically designed to bend, like your finger. The patented cogs "close up" as the belt bends, reducing compression strains. Result: cooler running . . . longer life.



Cog-Belts and Radiator Hose by

Dayton Rubber

Since 1905

WORLD'S LARGEST MANUFACTURER OF V-BELTS

LEE WAY'S FRUEHAUF AEROVANS IN THE SOUTHWEST!

700 Million Pounds of Freight a Year Roll Through Six States

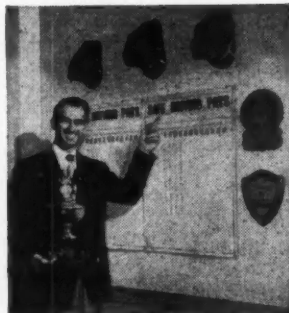


R. E. LEE
President of Lee Way Motor
Freight, Inc.

"Operating on a 'time-table' schedule as Lee Way does", says R. E. Lee, President, "makes it absolutely necessary that we have sturdy, dependable equipment. Fruehauf Trailers certainly offer dependability. Their extreme roadworthiness and ability to 'take it' make them a particularly adaptable Trailer for our operations.

"We encounter every extreme of weather and road condition throughout the year along our routes; yet our Fruehaufs maintain prompt schedules because we can keep them on the roads, carrying everything from oil field equipment to perishables.

"The Southwest has come to recognize our yellow and black Fruehaufs as the Trailers that carry anything anywhere!"



M. S. LEE
President of Sooner Freight Lines,
Vice President of Lee Way,

M. S. Lee, President of Sooner Freight Lines, Vice President of Lee Way, says, "Our Fruehaufs have helped us achieve our safety records because they trail easier, reduce driver fatigue. Good equipment pays off with our drivers too. They like to pull Fruehaufs."



HANDLE SMOOTHLY—

Clyde M. Bozeman, veteran driver for Lee Way, says, "I like these Fruehaufs because they handle smoothly, trail evenly. They don't fight you on the road."



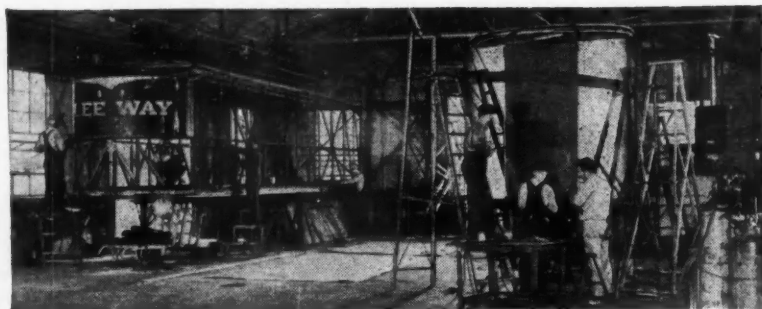
R. W. LEE
Owner and Founder

At 13 Mr. Lee carried "drummers" by buggy. Next a taxi line; then a bus line. By 1934 Mr. Lee was hauling freight and passengers over most of Oklahoma. Today, 325 Lee Way Trailers cover seventeen and a half million miles a year.



Fruehauf Means Minimum Maintenance

J. L. (Spud) Brundage, Mgr. of Maintenance, says, "We have found Fruehaufs require a minimum of maintenance, last longer on the road without breakdowns and are almost impossible to wear out."



THE AEROVAN IS EASY TO REPAIR... OR REBUILD

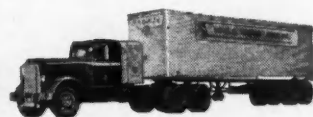
Stronger bridge-type construction in the Aero van lets Lee Way body men replace damaged panels without a waste of time, leaves them as strong as a brand new Trailer, even though they're years old. It protects the load, yet never sacrifices strength for carrying capacity.

FRUEHAUF Trailers

FRUEHAUF BUILDS OVER 20

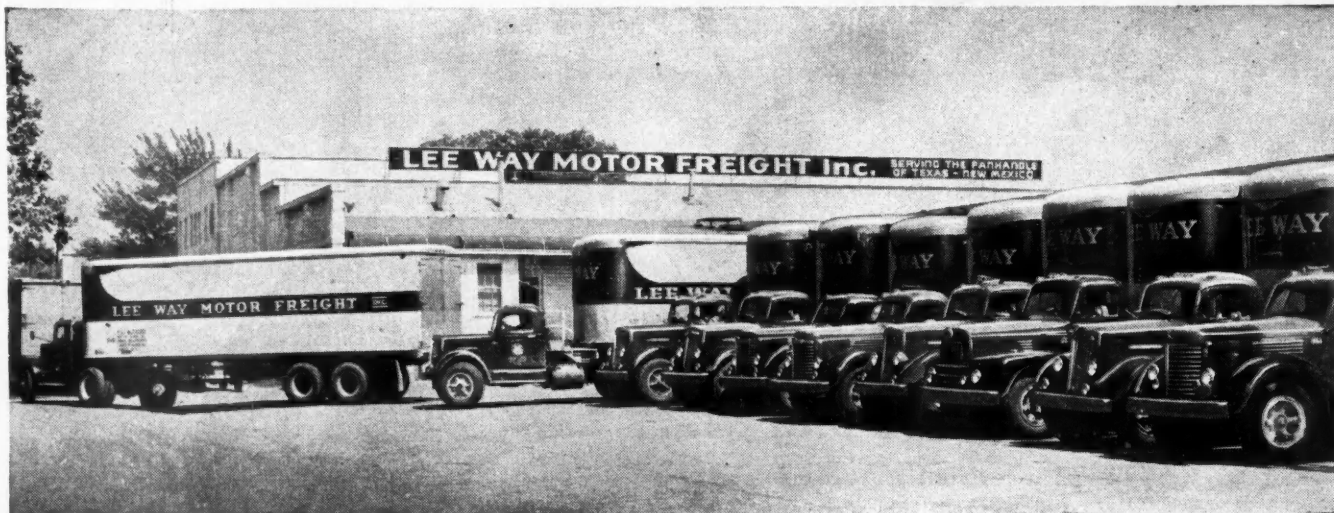


ALUMINUM (CORRUGATED-TYPE)



STAINLESS STEEL

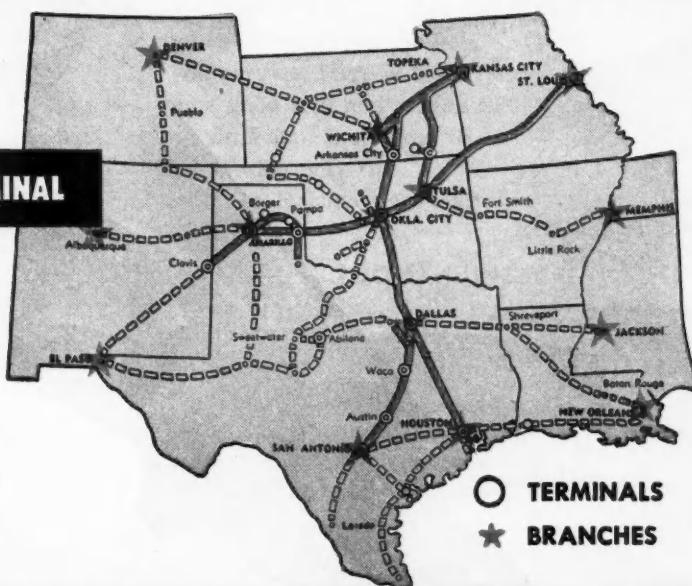
HAUL ANYTHING ANYWHERE



Lee Way Trailers operate from Lee Way terminals through 6 states. 210 Aerovans, 84 Stainless Steel and 87 Truck Bodies make up this modern, hard working fleet.

BRANCH SERVICE AT EVERY LEE WAY TERMINAL

Everywhere there is a Lee Way Terminal there is a Fruehauf Branch, providing fast, dependable service on everything from regular maintenance to major overhauls and rebuilding.



Sooner Freight Lines Distribute to Western Okla. Sooner Freight Line, Inc., a subsidiary of Lee Way, operates as an intra-state carrier, distributing Lee Way and Sooner Freight throughout Western Oklahoma. Again, Sooner is a Fruehauf-equipped operation. Truck Bodies, as well as Aerovans, perform with round-the-clock deliveries of everyday needs.

Gravity-Tandem Saved A Life For Us Supt. of Drivers, Phillips, says "The Fruehauf Gravity-Tandem Suspension saved a driver's life. To avoid collision, driver Thomas took a G.T. Aerovan down a 100 foot embankment. The flexibility of the underconstruction kept the 30,000 lb. load upright, the driver safe."



DIFFERENT STANDARD BODY TYPES



TANK-TRAILERS



CORRUGATED STEEL

Fruehauf Trailer Company,
10940 Harper Ave., Detroit 32, Mich.

Please send information on _____
(indicate type of unit)

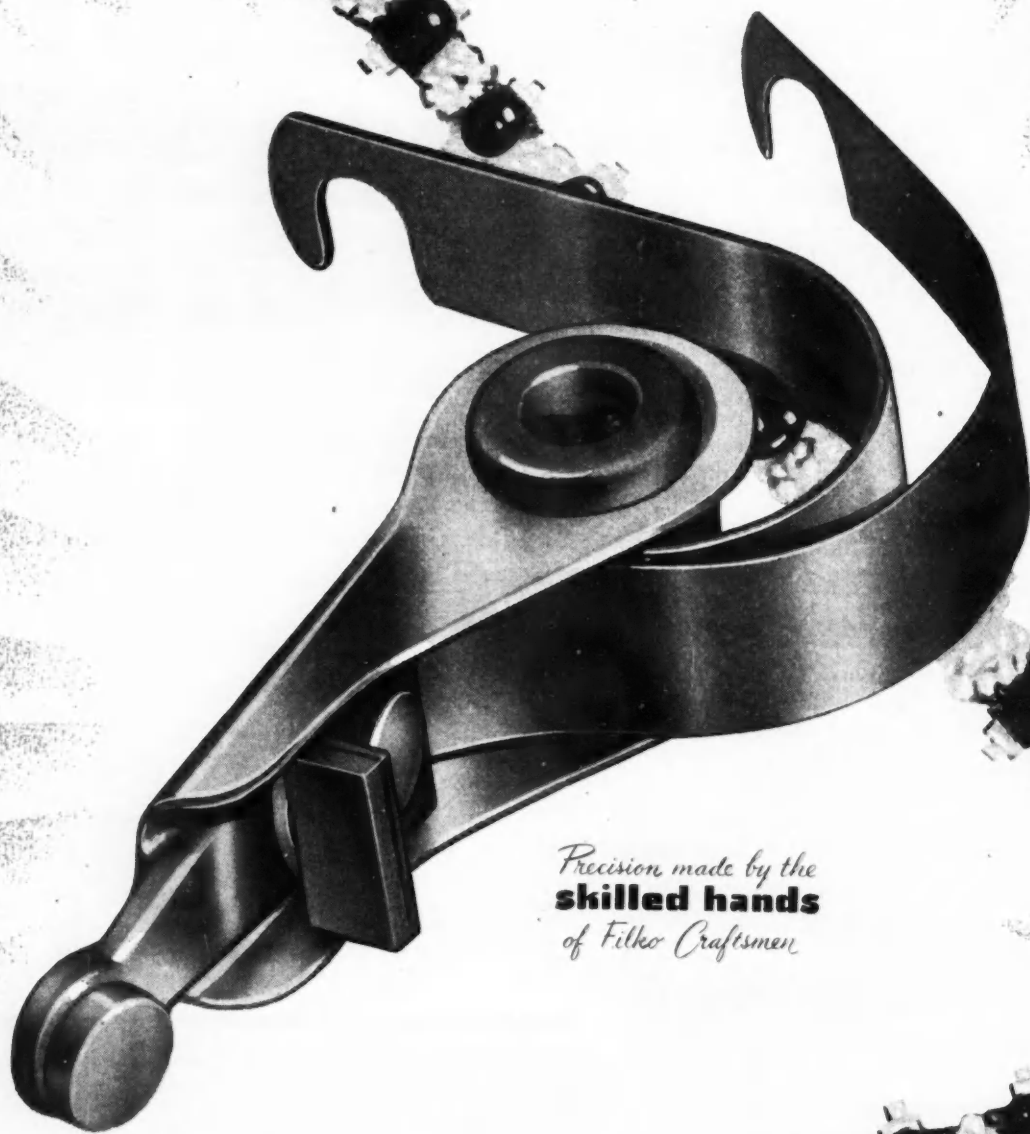
Name _____

Address _____

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Matchless Gems of Quality



*Precision made by the
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... in "The Crown Jewels of Ignition"

Filko

**perfection
puts you years ahead
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The eleven gems of quality pointed out in the Crown Jewel Contact Arm exemplify the superiority of Filko design and craftsmanship. Proof of the value of these gems of quality is to be found in the matchless performance of the Crown Jewels of Ignition in the cars and trucks you service. Here is the final test of Filko perfection that wins good will and profits for every shop owner who standardizes on Filko. Start now to insure your service and earnings by offering only the Crown Jewels of Ignition... Filko Ignition Replacement Parts!

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DEEP CHANNEL SECTION
for permanent alignment.

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for long, trouble-free life.

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for insured efficiency.

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securely locked in.

HEAVY WALLED BEARING
for accurate timing.

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hydrogen brazed for long life.

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for positive control.

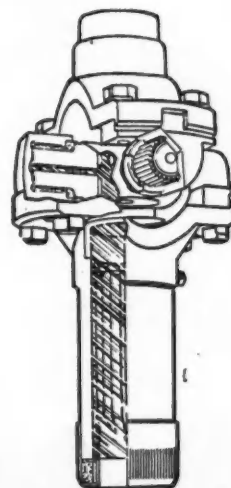
MOULDED RUBBING BLOCK
cross-weave linen for endurance.

EXTRA LARGE RIVET
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MECCHANICS joints are designed to permit generous, long-lasting lubrication — without disassembling. One "shot", through a convenient oil plug hole in the cross, fills the reservoir from which the lubricant is forced to all four bearings, equally. Another "shot" fills the slip-yoke chamber. Thoroughly efficient seals prevent leakage and keep out dirt and moisture.



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MIRRORS



For SAFETY and DURABILITY

The Atlantic Refining Company, after extensive study, has approved an arrangement of plane and convex mirrors designed to provide maximum rear vision on their truck equipment under all conditions.

Some Outstanding Features of Delbar Mirrors:

- ★ Diminishing Lenses have more uniformity, meaning less distortion and greater safety.
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WE WOULD LIKE TO KNOW MORE ABOUT DELBAR MIRRORS.

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QUESTION:

What grips like a



moves with the ease of a

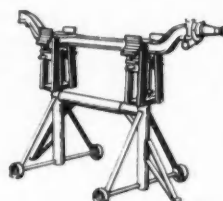
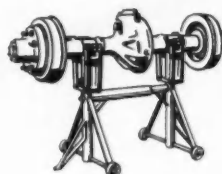
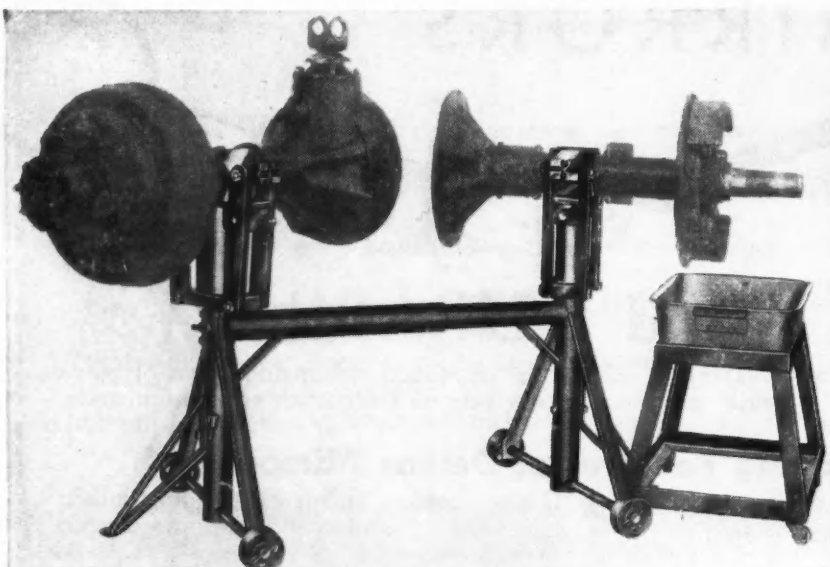


cuts axle service costs to the



ANSWER:

K·R·WILSON'S NEW REAR AXLE "DOLLIE"



KRW No. 50-AX Dollie. Shown at left with rear axle separated. No. 127 Tote Pan and No. 127-A Tote Pan Stand optional at \$4.00 and \$10.00 respectively. Upper inset shows huge 3-ton axle mounted on dollie. Lower inset shows auto front axle on dollie.

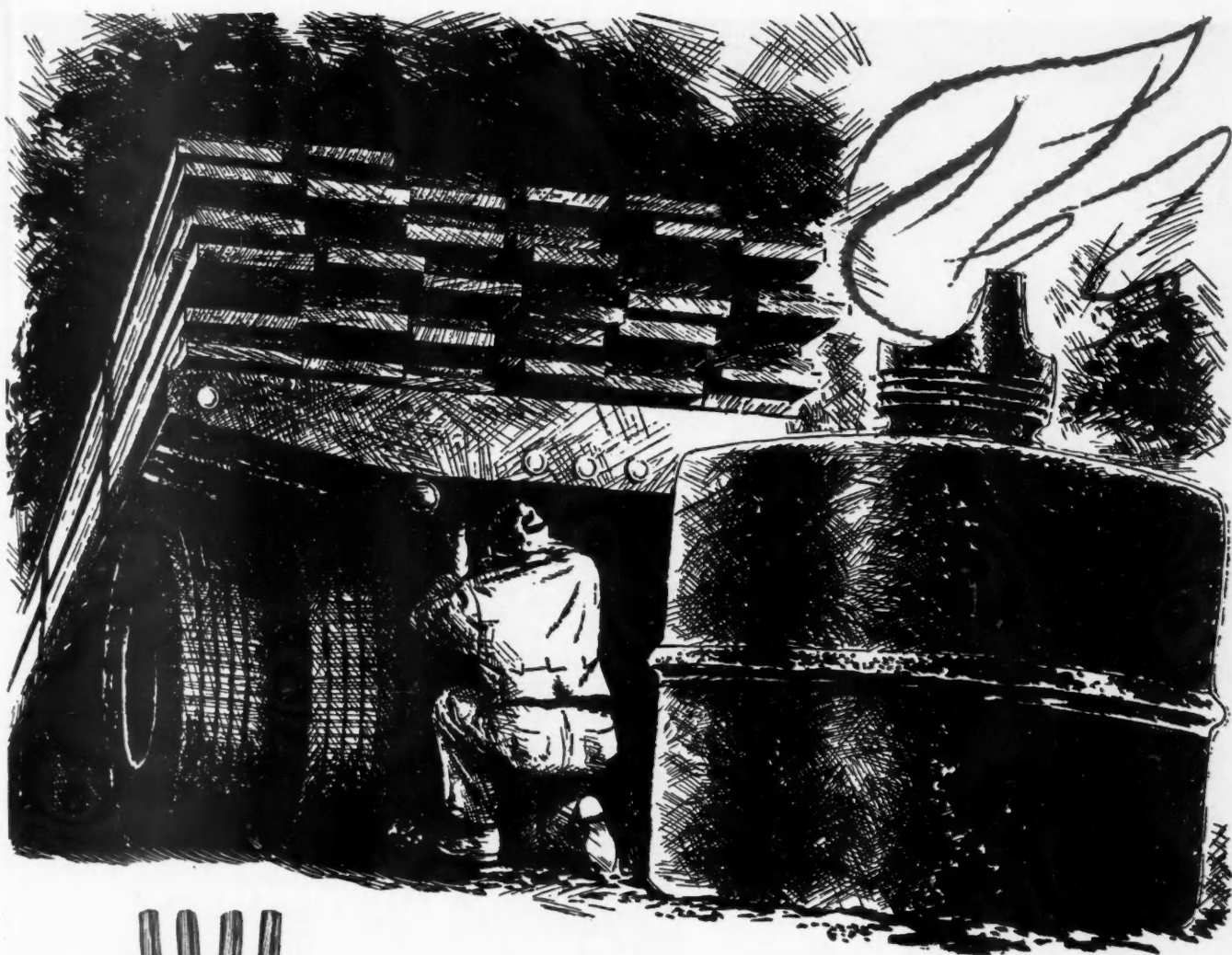
- Handles largest truck or smallest car axles with ease!
- Swings axles wide open. Lets you get into the "heart" of the job!
- Handles front axles and other work too!

Strictly the "work horse" of your shop! That's what you'll call the new K. R. W. Rear Axle Dollie. Handles front or rear axles, drive shafts and drive shaft housings. Scientifically designed working height. A few turns with a speed wrench and the axle can be separated into easy working position (illustrated above). You can do complete axle overhaul without removing axle from the dollie. Made of welded tubular steel . . . it's rugged yet lightweight. Easily wheeled to and from car or truck.

Priced amazingly low at \$108.35 f.o.b. factory. Order today from Dept. 85

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PACKARD TRAILER FLEX-O-CORD
made especially for trailer use

The "life-line" to the lights and signals on your trailers and semi-trailers has *got* to be good, for so much depends on it.

Ordinary wiring just won't do . . . you need the dependable service and the low cost per vehicle per mile that are found only in the specially heavy, tough, rubber-jacketed cord known as Packard Trailer Flex-O-Cord.

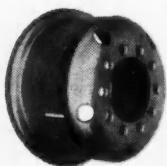
Trailer Flex-O-Cord is available with four, six and seven conductors . . . comes in 25-foot and 50-foot lengths. It is one of Packard's "specials" designed in the interest of more economical fleet operation.

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 Packard Electric Division, General Motors Corporation
 Warren, Ohio

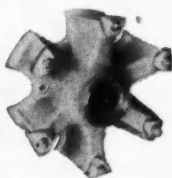
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Alcoa Engineers specially designed the unique wheel tester shown above. It duplicates actual "road-run" loads—even the strain of rounding a curve at 60 m.p.h. In test...as well as in use...aluminum wheels prove equal to the strength of wheels made from heavier materials.

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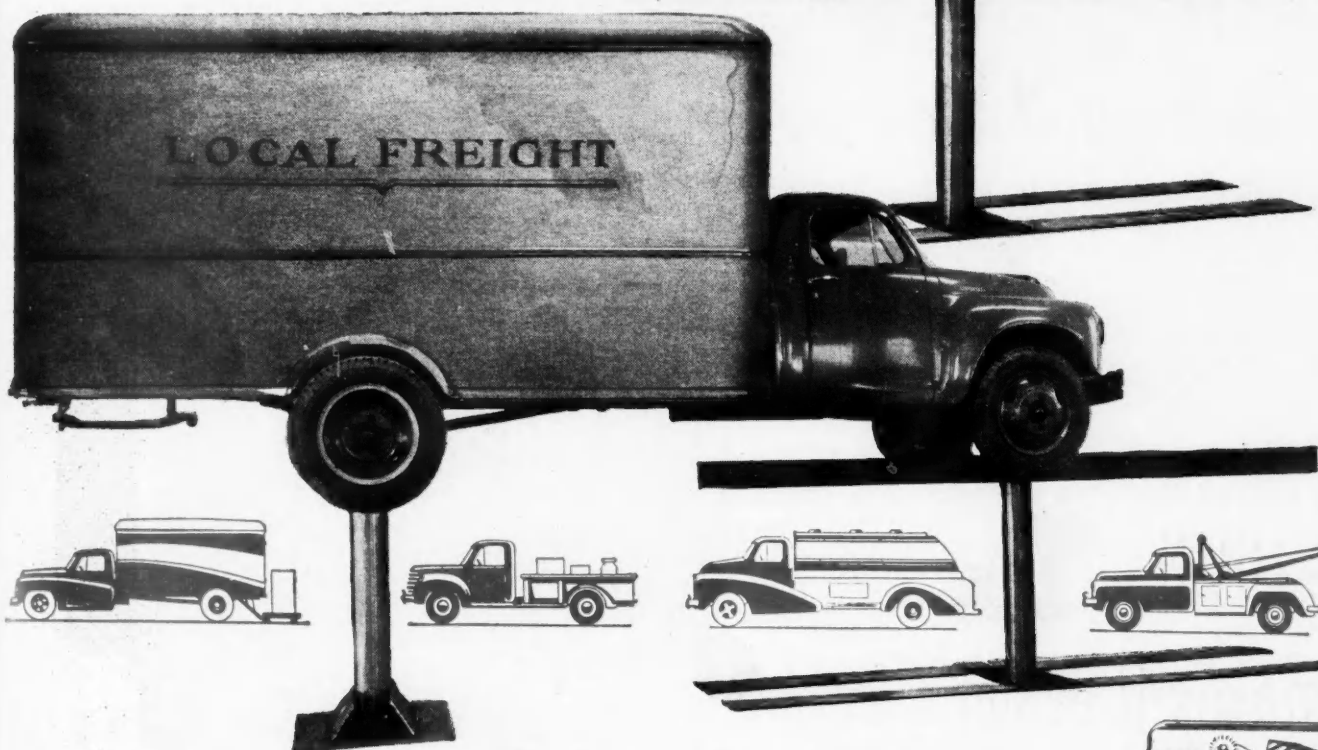
ALCOA



Aluminum Wheels

Versatile is the word for this GLOBE TRUCK HOIST

The photos tell the
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As a *single-post* Hoist, this Globe type SLR handles all weights of the lighter, shorter commercial vehicles *plus* passenger cars and trucks built on passenger car chassis. As a *two-post* Hoist, this same versatile Globe Hoist handles practically all heavy, long wheelbase trucks.

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You cut the cost of servicing your trucks when you install versatile Globe Hoists. Work moves through your shop faster—trucks are back on the road a lot sooner. So... mail the coupon today and get the latest word on truck hoists.



GLOBE HOIST COMPANY, 1000 E. Mermaid Lane
Philadelphia 18, Pa.
(Factories at Des Moines, Iowa and Philadelphia, Pa.)



The World's Most Complete and Versatile Line of Lifting Equipment

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1000 E. Mermaid Lane,
Philadelphia 18, Pa.

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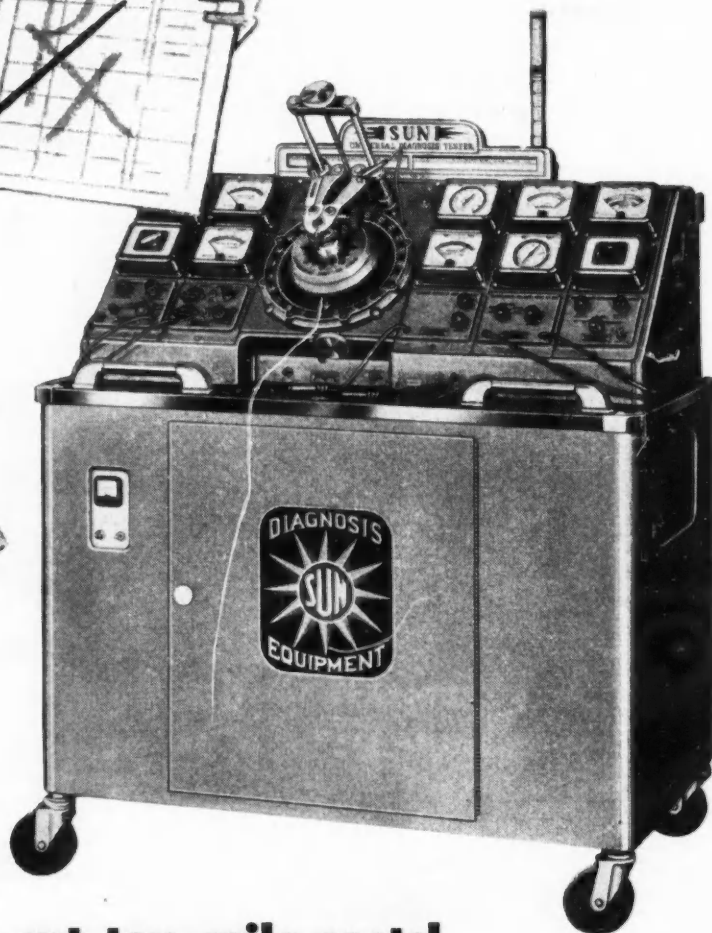
Gentlemen:
Please send me further information on Globe Truck
Hoists.

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Company.....
Address.....
City.....Zone.....State.....



SUN
makes it easier
for you

...to cut ton-mile costs!



Experiences like these prove the value of SUN Diagnosis Equipment in reducing ton-mile costs and maintenance costs:

- "50% savings—gas mileage increased from 4 to 6 miles per gallon."
—large Dairy Company
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—Car Rental Agency
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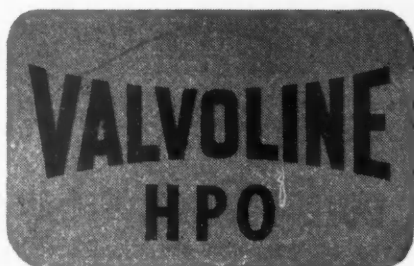
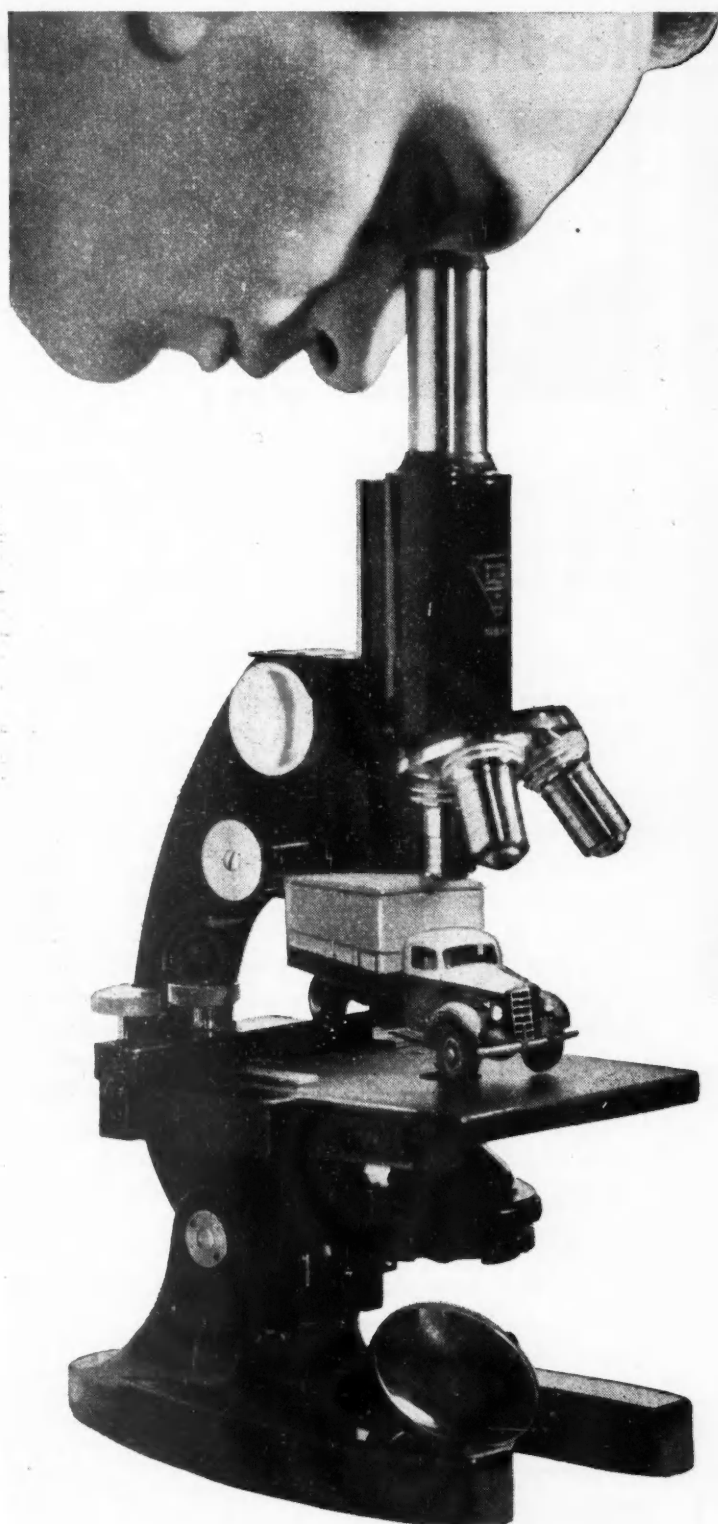
Whether you service your own equipment or not, SUN will gladly demonstrate how fleets of your size and type are cutting ton-mile costs and increasing profits with a SUN Diagnosis Plan. Tell us how many vehicles you operate and the type of service. We will work out a SUN Diagnosis Plan for you that can reduce your operating and maintenance costs.



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CHICAGO 31, ILLINOIS

R-5855



How to find out whether you're draining your oil too soon, or not soon enough

There's no positive mileage at which oil should be drained in a fleet. You might be robbing yourself of useful oil mileage every time you drain. Or you might be getting excessive wear in your units by using your oil too long.

Our free Fleet Lab Service does away with guesswork

Even the largest fleet couldn't justify installing a costly laboratory like ours. But because so many fleets are regular users of Valvoline HPO, we can furnish this valuable oil drain analysis service free to our customers. Many fleets, large and small, depend on it constantly.

What this free service will do for you

After you have tried Valvoline in your fleet for your usual drain period, send us a quart sample of the drain. We will make a detailed laboratory analysis and send you the results, correlated with your operating conditions, together with our recommendations. Such tests show you how to get economically safe mileage from your oil without risking excessive engine wear. And they sometimes reveal hidden facts about the operation and maintenance of your units that you'll be glad to know.

Your use of Valvoline will show you why so many fleets use Valvoline exclusively—saving on oil and mechanical upkeep.

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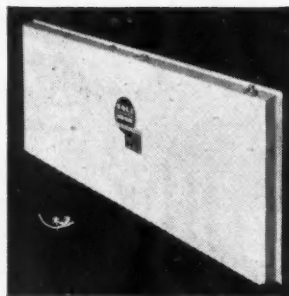
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Road Failure Can't Occur

with

DOLE equipped TRUCKS



DOC DOLECO Says:



The few pennies a day it costs to operate with DOLE Truck Plates is less than the cost of dry ice and you don't need to re-ice along the way. For trouble-free delivery specify DOLE to your body builder.

When your DOLE-equipped trucks leave in the morning for the day's run you can be sure they'll deliver their load at peak

condition without a stop for refrigeration service. There's no ice to melt and soak the truck and load; no dry ice to evaporate; no compressor to stop or break down. The secret is DOLE Holdover Plates.

DOLE Holdover Truck Plates are ruggedly built of steel and installed on ceiling or walls. Filled with an eutectic solution, the plates are charged at night in your garage or depot and enough refrigeration is stored within the plates to last the whole next day. There are no moving parts; no mechanism to break down; no repairs needed on the way to delay deliveries. Every hour of the day, every mile of the way, DOLE Truck Plates are positive insurance against spoiled loads and costly repairs. And once installed, operating costs are less than other forms of truck refrigeration.

Your fleet deserves the best—DOLE.
Write for complete information on DOLE
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DOLE make-and-break connections provide quick and easy charging and get-away from your garage or depot charging system.



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EVEN IN THE GOOD OLD DAYS

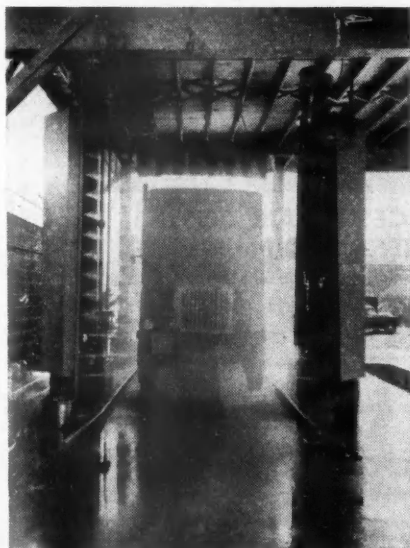


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Demanded Spotless Fleets

REQUIRES LITTLE SPACE

Engineered to your needs



—Now, bus and truck washing has made progress, too. Keeping pace with new, streamlined equipment, the Whiting* Washer helps the progressive fleet operators. It eliminates old-fashioned hand washing drudgery, saves vehicle lay-up time, reduces over-all costs. It handles large fleets that couldn't be kept clean any other way, and maintains the customer good will every successful operator knows is so essential.

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Send the Coupon for Complete Details

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Please send information on
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SUB-FREEEZING TEMPERATURES

...all-around
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Permace masking tape sticks to the job!

Specially treated to resist moisture and temperature extremes. Resists lacquer, enamel, paint and solvents.

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Why take chances with a makeshift, "we hope it works" assembly when you can get a tested, approved "NATIONAL" System. You have a choice of 6 "NATIONAL" Systems—all engineered and guaranteed, in writing, to do the job. Delivered complete, with motor and blower units. Both overhead and under-floor systems for present buildings or new construction. Overhead Systems are priced from \$206.25 depending on number of inlets. Don't gamble. It takes only a 3¢ stamp to find out about all of the "NATIONAL" Systems—and you'll be surprised at how little they cost. There is a qualified "NATIONAL" man near you. Write today for literature.

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NEW Fleet SAVINGS with Jetomatic Car Washer!



**REDUCES REPAIR COSTS
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Automatic; runs on one track

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- ★ WRITE FOR LITERATURE #70 FLEET MODEL

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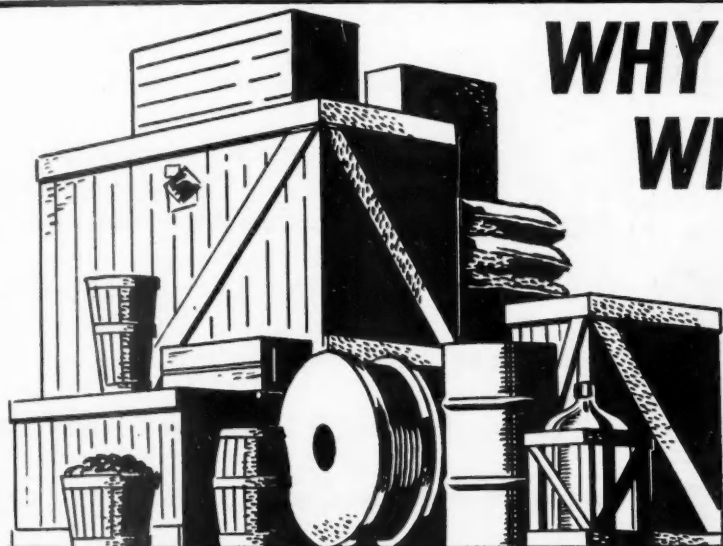
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WRITE
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"MASK THEM QUICK and EASY"



WHY MAKE 3 TRIPS WHEN 2 WILL DO ?

**FREIGHT LEFT
ON THE DOCK
MEANS LESS
PROFIT FOR YOU**

You do not have to leave part of the load behind when you're pulling a **KINGHAM ALL-ALUMINUM FRAMELESS TRAILER**. Your choice of design . . . smooth panel, corrugated panel or outside vertical post, all afford minimum weight with maximum carrying capacity . . . giving 2000 lbs. or more additional pay load per trip. See your nearest Kingham distributor or write direct.

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A TRIP
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ZACO SHORTSTOP IGNITION SPRAY

Starts all damp motors due to moisture. Stops quick. Protects for months against stalling corrosion and current leakage.

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Clean the chrome, then Spray. Keeps chrome spray Zaco Chrome bright for months.

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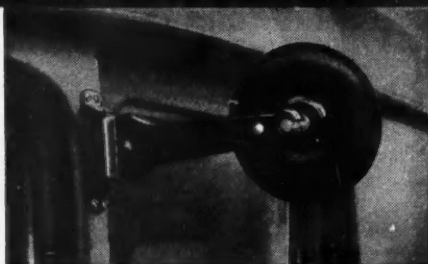


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It's big (5" diame-
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Ball Joint for rigid
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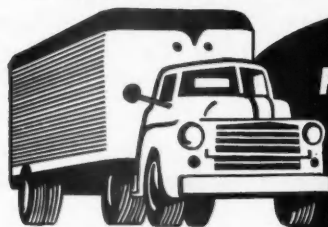
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big weldments on a production
basis — die pressed channels
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Special April Issue

The 16th edition of Commercial Car Journal's Reference Annual will make its appearance in April. As in past years this special number will include the latest information on vehicle maintenance, up-to-date service specifications, important data on selection and operation, and more than 28 separate tables covering vital statistics of the industry. In addition, the regular popular CCJ departments will appear.

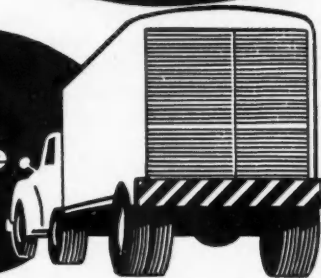
If you work with trucks and buses, deal in trucks and buses, service them, supervise maintenance or operations, or own commercial vehicles, you will definitely want to examine this issue very carefully. It is designed to be of assistance throughout the year as a guide to recommended fleet practices.

Refinish with HARDCOTE



**For Better
Appearance**

**and lower
Maintenance
Costs**



Hardcote Transit Finishes acclaimed by large and small fleet operators for their ability to "take it" in all types of weather. Easy to apply. Completely washable. Get the facts about Hardcote, a complete system of "long life" better appearing finishes that will make your fleet stand out and save maintenance costs. Send for color cards today.



MCDUGALL-BUTLER CO., INC.
Buffalo 14, New York

For the FLEET OPERATOR Lowest CLEANING COSTS IN HISTORY

**Cut your cleaning costs 75%
with all-electric Speedyletric
Steam Jet Cleaner.**

The JC-50 blasts through road dirt, caked grease, tar deposits . . . in minutes the body, chassis, engine and other parts are clean, ready for inspection and repair. And used with paint stripping agent the JC-50 has vehicles ready for repainting in jig time.

Without fumes, flames or fire hazards, Speedyletric safely and silently cleans vehicles in your garage without danger or inconvenience to workers.

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 - Cold water jet — at 400 p.s.i. — up to 240 gals. per hour
 - Hot water jet — 110 gals. per hour at up to 200°F.

Cut your cleaning costs with Speedyletric — send for Bulletin 72-7 containing full details.

See the Speedyletric JC-50 on display . . .

National Transport Vehicle Show
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Livingstone Engineering Company
Manufacturers of  Steam Generator
100 Grove Street • Worcester 5, Mass.



Gasket Right to insure Lower Maintenance Costs!

Follow these 4 approved procedures when
REPLACING gasket and head!

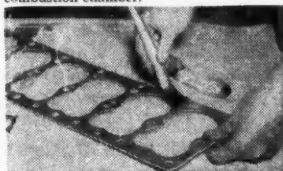
1. Check Gasket for Correct Fit!

Before installing a new gasket, it's always good practice to check it for proper fit on the cylinder block. Often there is a slight difference between car models that is not apparent by casual inspection. Installing a gasket that does not fit properly will result in trouble and come-backs. Watch out, too, for bent gaskets — although the metal can easily be straightened, a sharp bend usually breaks the asbestos filler, and renders the gasket useless.



2. Use Non-Hardening Gasket Cement!

Although most Fel-Pro Gaskets are pre-coated at the factory, many mechanics prefer to apply a gasket cement as an extra precaution. Shellac and other hard drying compounds should not be used for this purpose. Their sealing action is only temporary and dry particles often find their way into the combustion chamber.



4. Use a Gasket Centering Tool!

A gasket centering tool will save installation time, prevent gasket damage and assure proper alignment. You may be able to set a gasket on the block squarely, but as soon as you put the head in place, the gasket is going to move. Gasket Centering Tools, like the Fel-Pro Set, are inexpensive and easy to use. The savings in time alone on a few jobs will more than pay for a set.

3. Place Gasket on Block Before Coating Second Side!

The common practice of coating one side of the gasket, then flopping it over on newspaper to coat the other side is not recommended. Most of the gasket compound remains on the newspaper. A better practice is to coat one side first, then place the gasket, coated side down, on the cylinder block and coat the other side. Wipe around combustion chambers to avoid getting compound into the cylinders.



Gasket Right to
Stop "Little Drips"



**Gasket
Right with
FEL-PRO
Gaskets!**

FELT PRODUCTS MFG. CO., 1520 CARROLL AVENUE, CHICAGO 7, ILLINOIS

for LOWER OPERATING COSTS keep an EYE on the



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- * PREVENT LUGGING!
- * REDUCE WEAR

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ELECTRIC
TACHOMETERS**

Every engine has a speed range where horsepower and fuel consumption are most efficient and economical. Leading fleet operators report a substantial savings in fuel, maintenance costs and increased safety by having drivers operate in this R.P.M. economy range. Sun Electric Tachometers are simple to install, they have no drive cables or rotating parts. Models are available for gasoline engines in any speed range up to 7,000 R.P.M. Write for name of your local distributor and complete data sheet TODAY!

- * FOR CARS, TRUCKS, TRACTORS & BOATS
- * NO DRIVE CABLES
- * EASY TO INSTALL
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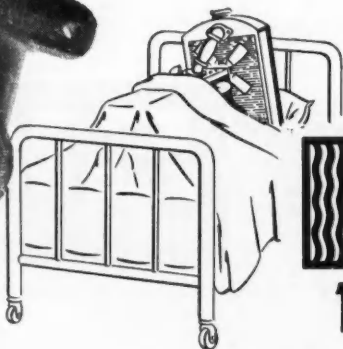
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for your
Engines...



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Hotstart
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ENGINE PRE-HEATER

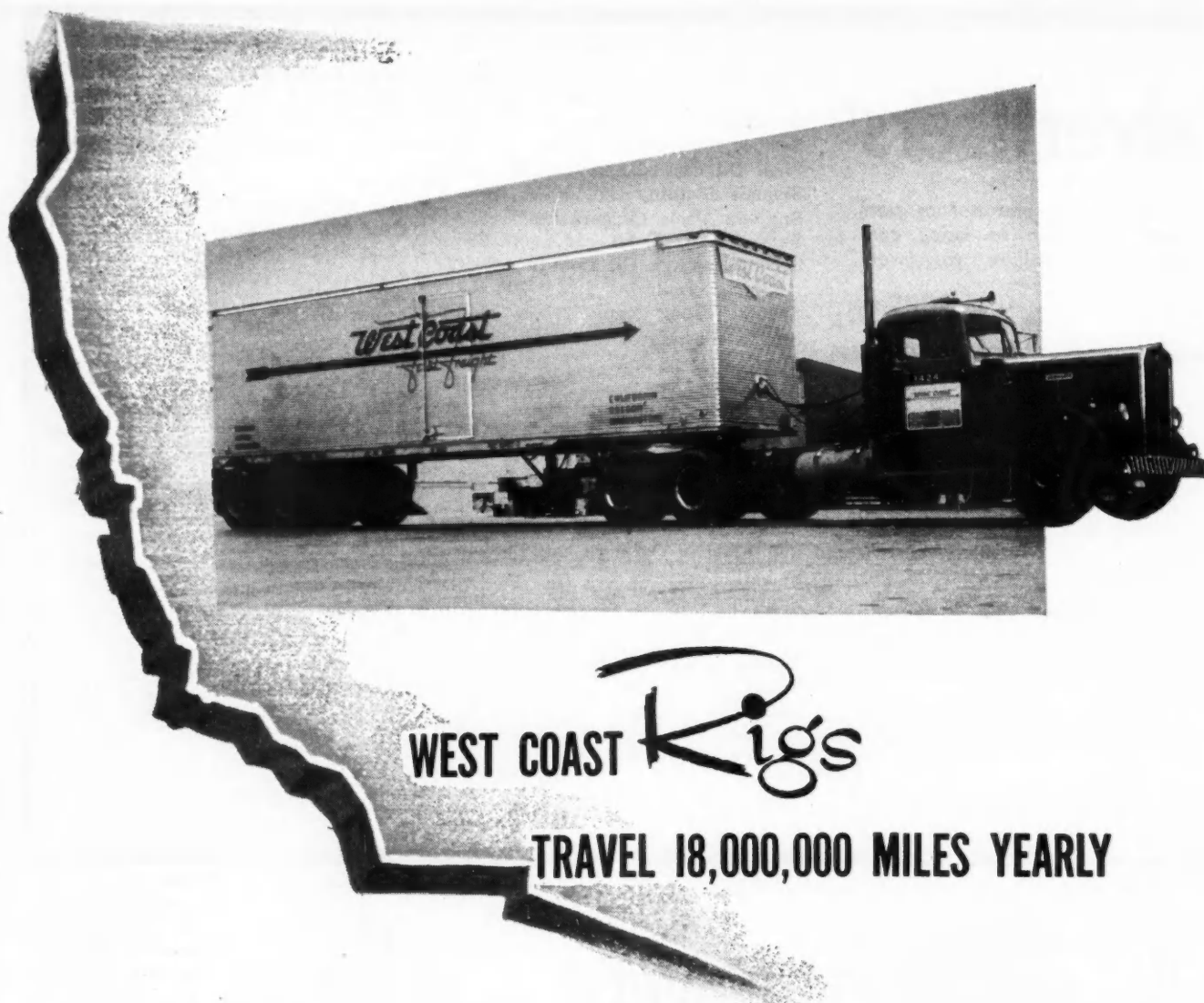
WHEN you install a KIM Hotstart on your engines it's like tucking them into a nice warm bed. For these engine pre-heaters circulate hot water through the engines when they are not in use; protect them against bitterest winter cold; keep them rarin' to go at the touch of the starter. Here are other advantages of the KIM Hotstart:

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- ✓ Reduces fuel consumption
- ✓ Eliminates necessity of heated terminals
- ✓ Prolongs battery life

There's a KIM Hotstart to fit every gas or diesel engine. Let your automotive supplier show you how KIM Hotstart cuts the cost of winter damage. Or fill in and mail the coupon for informative literature. KIM Hotstart Manufacturing Company, West 917 Broadway, Spokane 11, Washington.

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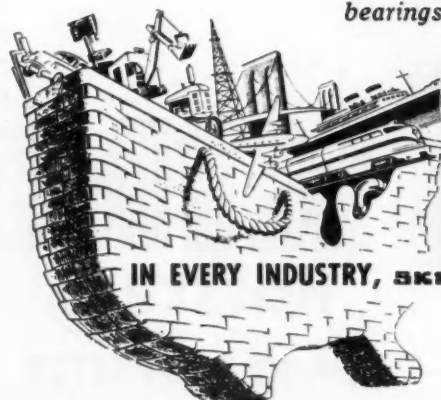
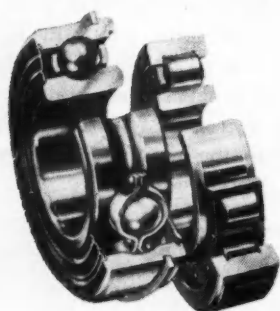
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Their average load rolls 721 miles in a 'round-the-clock operation—sometimes through mountain passes at 30° below, sometimes across deserts at 115°. More than just average endurance is required of both men and machines.

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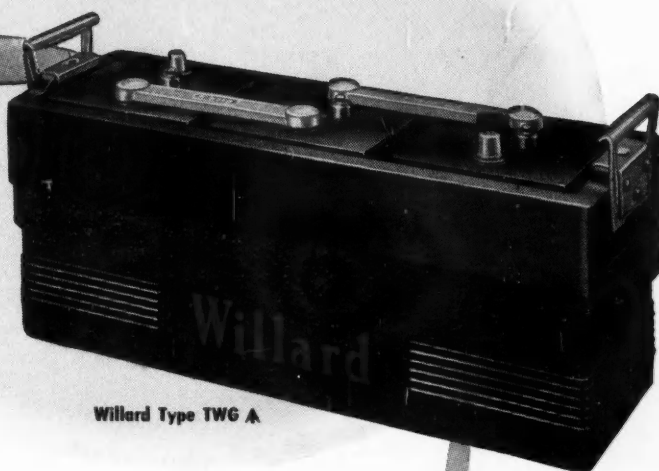
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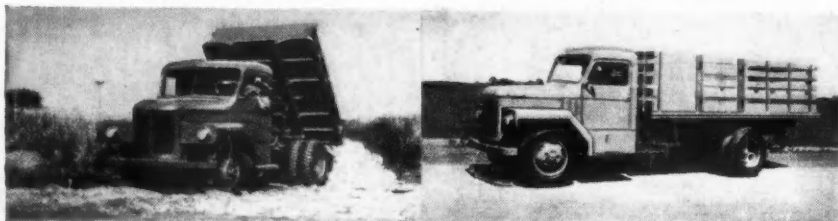
WILLARD STORAGE BATTERY COMPANY

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The popular LD licks a lot of snow and ice, too! It safely handles jobs that roll up excessive repair costs for ordinary vehicles. That's because

this light-duty Model LD is a true 4x4!



When the rains come and the going is soft, the LD can travel while other trucks must stay at home. Its g.v.w. is 14,500 lbs.

Pays out on smooth highway, too! For general hauling or patrol work, the LD is a growing, economical favorite.

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- Ability to handle more jobs
- Ability to travel easily and safely on or off the highway
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- Lower maintenance costs (up to twice the front tire life, for example)
- Up to twice the truck life

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